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Steel Buying Held in Check

Consumers Follow Waiting Policy as Shipments Are Heavy and Deliveries Grow Easier—Steel Corporation Booking Rate Is Gaining—Shading of Prices Not Extensive—Rail Mills Heavily Filled—Sheet Makers Need Tonnage

A SLIGHT quickening of interest in steel is shown this week but in the main, conditions remain under check as buyers pursue a waiting policy. With some exceptions, they are able to do so since they are receiving liberal shipments against old orders and with more flexible mill schedules and exceptional transportation service, they may fill their new needs without trouble. There is small incentive in the present situation for them to obligate themselves beyond the immediate future although some buying on fourth quarter contracts is developing, notably in merchant bars.

Independent sheet conditions are less favorable as the mills are unable to accumulate tonnage and some are offering deliveries in a week to ten days. Sheet production in the Mahoning valley is the lowest since July. Wire buying has increased 40 per cent since the low point in July. Pipe and tin plate demand is good. The larger plate mills are in a strong position. Railmakers with the exception of the Colorado mill are booked full until June 1924.

Gaining In Bookings

Steel corporation bookings have shown a comfortable increase this month which is a better record, however than that of the independents collectively. The new orders of the leading producer averaged 31,391 tons daily the first three weeks in September or about 65 per cent of finishing capacity. This compares with 15,268 tons daily average the corresponding period in August and 28,647 tons daily average for the entire month of August. The Steel corporation in August shipped approximately 1,200,000 tons. Its operations this week are up to 90.3 per cent of ingot capacity.

Except in the East where some of the smaller mills have shaded plates and structural shapes $2 per ton and in extreme cases, more than that, finished steel prices have not softened. Producers representing by far the greater tonnage of the market are holding firm. The recent concessions in strip steel, black sheets, rail steel bars, nuts and bolts and miscellaneous lines are continuing. Reports at Cleveland and Youngstown of shading of sheet bars are disproved by tonnage sales this week in both territories at the full price of $42.50, Youngstown. Some concessions have been made in slabs and billets, however.

The renewed decline in pig iron this week forced downward IRON TRADE REVIEW composite of fourteen leading iron and steel products. The index is $44.47 against $44.70 last week and $44.72 two weeks ago.

Some Good Buying

Despite the sluggish character of the market, the volume of definite undertakings being initiated or placed under contract for steel makes a good showing. Outstanding in this is the revival of storage tank buying by the oil companies. Awards of this character in the week totaled 14,000 tons of which the leading lot was 6000 tons for the Pan American Petroleum Co. Other tank contracts in sight will require 40,000 to 50,000 tons, it is estimated at Chicago. Structural steel awards this week total 14,800 tons.

Railroad demands still are heavy. The Pennsylvania and Reading roads are expected to close this week for 100,000 tons of rails against 1924 requirements. New England roads have inquired for 24,000 tons of rails for next year. The Great Northern has placed 8000 tons of track material at Chicago. The New York Central is inquiring for 6500 tons of plain rolled steel and other shop material for fourth quarter.

Export buying in this country is heavier though Japanese tonnage is coming through slowly. The Steel corporation's foreign sales the first three weeks this month total 21,500 tons including one lot of 12,000 tons of tubular goods.

Iron Market Is Weak

Further weakness has appeared this week in pig iron as buyers have held back and production apparently has continued in excess of consumption despite the recent blowing out of furnaces. Other stacks now are being put out including two in Alabama and one at Chicago. Alabama iron is freely offered at $21, Birmingham, a cut of $2, the Chicago market is down $1 to $26 and $24.50 base was done this week at Buffalo, southern Ohio and in the valleys. Eastern prices also are soft. A large eastern steel company again has entered the market as a seller out of Buffalo.

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Pig Iron Market Dull and Weak

Action on Fourth Quarter Requirements Further Deferred by Buyers—Sales in Valley, Southern Ohio and Buffalo Made at $24.50—Birmingham Quotation Down to $21—Chicago Off $1 to $26

PITTSBURGH, Sept. 25.—Pig iron for the most part continues quiet, only an occasional order being placed. A start has been made by the Westinghouse Electric & Mfg. Co. on its purchase of 1000 tons each of three grades of foundry iron for Trafford City, Pa. Part of the order is being distributed today and more of it tomorrow among several sellers. No. 2 foundry iron, (1.75 to 2.25 silicon), is quotable at $24.50 to $25, valley, some of the No. 1 grade being sold to the Westinghouse company at $26, valley. It is understood that this buyer also has closed on a tonnage for its Cleveland plant. Other sales to local melters are limited in tonnage, single carload lots or 100 to 200-ton loads being featured. Users apparently have determined upon a policy of spot buying for some time to come. No new inquiries are out this week for tonnage, a few melters featuring prices on small lots though no inquiries are out at all for bessemer and even carload sales this week are lacking. The market quotation is unchanged at $26.50, valley, although some off-grade bessemer recently sold at $25.50. So far valley producers have not shaded the $25, valley price on basic, and that level is quoted on an inquiry now out for 1000 tons from a valley district melter to be delivered in October, the delivered figure named being $25.50. A sheet maker in the Pittsburgh district is understood to have closed with a Pennsylvania furnace on 1000 tons of basic below the $25, furnace price. Inquiry for malleable as well as sales are absent but this grade is quotable at $24.50 to $26, valley, the same as for two or three week past. Gray forge likewise is inactive and unchanged at $24 to $24.50 while low-phosphorus copper-free iron continues to sell in small tonnages at $30 to $31, valley.

New Orders Are Scarce

Boston, Sept. 25.—Continued lack of demand in the pig iron market has caused some price softness during the past week. Sales have been so few and of such small tonnages that the real trend of the market is difficult to determine. One lot of 200 tons of eastern Pennsylvania No. 2X (2.25 to 2.75 silicon) was placed at $25 furnace or $28.65, delivered New England. Other sales of about the same size from Buffalo furnaces have been placed at $24 furnace, but these are understood to have been resale transactions. No direct furnace sales from Buffalo below $24.50 have come to light in this district, but it appears certain that a round tonnage would command at least this figure which means $29.42 delivered. Virginia iron is selling at $25 furnace or $30.92 delivered. Southern iron although reported weak from Birmingham is still too high to be a market factor here. A Bridgeport, Conn., consumer took between 2000 and 3000 tons of iron during the week but price is withheld. The General Electric Co. is in the market for 900 tons of 3.25 to 3.75 silicon iron, for its Pittsfield, Mass., plant. Several other large consumers are reported in a receptive mood although no formal inquiry of size is in the hands of dealers.

Eastern Prices Are Shaded

New York, Sept. 25.—Eastern foundry iron has been sold at $24 base furnace; this price is exceptional, however, and the going market is $24.50 to $25.50, base eastern furnace. While the asking price on Buffalo foundry is $25, this figure has been shaded materially. Central Pennsylvania foundry as a rule is held at $25, furnace, but sales have been made at substantially lower. The $25 price continues to be the minimum on Virginia foundry but in some instances silicon differentials have been waived; at the same time, sales of Virginia foundry have been made at $26 base in some instances. Sales over the past week aggregated over 6000 tons for this general territory and the largest buyer was the Crane Co., Bridgeport, Conn., which took 2500 tons. The Richardson & Boynton Co., Dover, N. J., has not yet taken action on its inquiry for 1000 tons of foundry for the fourth quarter and 4000 tons for the first quarter of next year. The New York Airbrake Co. is expected to take action shortly on 2000 tons of foundry for the fourth quarter. The General Electric Co. is in the market for about 900 tons of high silicon iron for Pittsfield, Mass. The New York Central is in the market for 700 tons. The Lackawanna railroad is in the market for a tonnage of high-silicon iron. Another melter has an inquiry out for 1000 tons for the fourth quarter. Sales of the past week included several hundred tons of high grade English copper free low-phosphorus iron at $31 duty paid tidewater for September shipment from abroad. The southern pig iron market now is regarded at $21.50 base Birmingham for foundry iron. Some sellers in this territory say they have sold so far during September more than double the pig iron tonnage which they entered in the dull month of July. There is a clearly defined disposition on the part of consumers to keep their inventories low so that present shipments as a rule are based on actual consumption and are not going into accumulation at the melting plants.

Buffalo Inquiry Is Heavy

Buffalo, Sept. 25.—Inquiry has increased to sizable proportions and sales are better. The aggregate inquiry has amounted to between 30,000 and 35,000 tons almost twice as much as the week before. In this total were individual lots for 4000 and 3000 tons, both from a district which ordinarily does not satisfy its requirements in this field. Several 1000 to 2000 and 1500-ton inquiries are on record. Sales were 50 per cent or better of the total inquiry. Among the lots sold was 2000 tons to an agricultural implement maker in Batavia. The current price is $24.50 to $25 for No. 2 plain, 1.75 to 2.25 silicon, and little bargaining is being done over differentials. Bethlehem Steel Co. has re-entered the market and is accepting tonnage for fourth quarter.

Southern Price Down to $21

Cincinnati, Sept. 25.—Standard southern pig iron dropped to $21, Birmingham base, in this market during the past week, a new low level for the year. The decline which amounts to $2, has not stimulated buying as was intended and as a result the market is in a very weak condition. Four furnaces, two in the Birmingham district and two in Tennessee, are now quoting $21 base, while a seller in this district has circulated the trade inviting business at that quotation. The break which came during the latter part of the week, represents the largest decline in the price of southern iron in over a year. In January when the pig iron market was extremely dull, southern iron dropped to $23 base, and then reacted to $25. In the opinion of a majority of the sellers the decline will prove detrimental in the end, because it will induce consumers to hold off purchases, on the belief that the market has not as yet reached the bottom. The southern Ohio market, also is weak, with sales at a very low ebb. While $24.50, Ironton base, can easily be done, one or two furnaces are holding their iron at $26 base, although this quotation is not a factor in the market at present. The most important transaction of the week was the sale of 2400 tons of iron to the International Harvester Co., for its Springfield, O., plant. The order involved 1200 tons of malleable iron which went to a Cleveland furnace and a like tonnage of northern foundry iron booked by a furnace in the southern Ohio district. Both grades, it is said, sold below prevailing market levels. Other sales do not exceed 2000 tons. A leading seller reports the sale of 750 tons of northern iron to a Michigan consumer and several lots of charcoal and silvery iron. Inquiries also are small. The Louisville & Nashville railroad is negotiating for 515 tons of iron to meet its specifications. The F. E. Meyer & Bro., Ashland, Ky., is inquiring for 300 tons of southern while a stove concern at Evansville, Ind., wants 200 tons of the same grade.

Cleveland Market Weak

Cleveland, Sept. 25.—A more unsatisfactory condition has developed in the pig iron market, as buyers indicate their intention of deferring purchases until lower prices are submitted. The market shows further evidence of weakness, and buying is confined entirely to small lots for immediate shipment. The Westinghouse Electric &

Mfg. Co., whose inquiry for something over 6000 tons was expected to test the market, has notified some interests here that it is not ready to close and probably will delay purchasing for a time. One bid of $25.50, Cleveland furnace, on the tonnage wanted for the Cleveland plant was ruled out as too high. Instead of closing for about 3000 tons for Cleveland, as expected, the company offered to buy 200 tons from a maker here, if delivery could be started the same day. Half of the International Harvester Co.'s order for 2400 tons of malleable for Springfield, O., is reported to have been placed with a Cleveland maker at less than the open market quotation of $25.50, furnace. On a moderate size tonnage of foundry iron for Cleveland, the silicon differential was waived, and the price was $25.50 furnace for iron of 2.25 to 2.75 silicon. Sales of No. 2 foundry iron still are being made at $24.50, valley, Ironton and Buffalo basis, this representing the minimum. A lake furnace closed for around 4000 tons in the week, made up of small lots, on some of which a price of $25, furnace, was named. The American Radiator Co. has closed for 500 tons. The sales in September of one interest in the northern Ohio group amount to 40,000 tons, about half of what normally could be expected. The inquiry from a Cincinnati brokerage firm, which amounted to 5000 tons, has not been closed with any seller in the northern Ohio group, so far as can be learned. Small sales of standard low-phosphorous iron have been made in the week at $30, with $31 for the higher silicon grade. No sales of inquiries involving basic are noted in this market.

Some large sellers with several furnaces say their specifications on contracts for October exceed those of September.

St. Louis Market Quieter

St. Louis, Sept. 24.—After a fair display of buying activity during the first two weeks of September, the pig iron market has relapsed into quietness. Both sales and inquiries have shrunk in volume, and melters seem for the time being to have satisfied their wants. The most notable transaction reported was 1000 tons of foundry to an Illinois radiator maker for delivery through balance of the year. An Illinois stove manufacturer took 500 tons and a Kansas melter 300 tons, both for balance of the year. Otherwise business was confined to small lots, ranging from carlots to 100 tons. Inquiries heard of included 500 tons from a Kansas foundry, 100 tons of 3.50 to 4 per cent silicon from a melter in the district and scattered lots aggregating less than 3000 tons. The 200 of 12 per cent ferrosilicon recently inquired for has been placed.

During the past several days decided signs of weakness developed, both in northern and southern iron. Chicago is offering freely at $26 in lots from one car to round tonnages, which is $1 under the lowest direct quotation of a week or ten days ago. All leading southern producers have authorized their local representatives to sell at $24, and some of the smaller makers are offering at $23.50. This latter figure has been considerably bettered by barge and rail delivery, and the interest with these facilities has recently disposed of a good aggregate ton-

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Wait for Lower Coke Price

Furnaces Continue To Defer Action as Market Gives Indications of Going to $4—Some Sales Closed at $4.25—Foundry Grade Also Weak

COKE PRICES, PAGE 847

Pittsburgh, Sept. 25.—Blast furnace operators are not buying beehive coke freely, but a number apparently are waiting for the price to reach $4, ovens. Some contracts expire Oct. 1 and coke producers expect buying before that date, although users continue to defer action as long as possible. So far as can be learned, $4 has not as yet been done in the spot market but $4.25 has, and $4.50 to $4.75 is the range quoted on contract tonnages. The Wheeling Steel Corp. is understood to be renewing its coke arrangement with a Cleveland interest for October at below $4.75, ovens. Spot transactions involve all the way from 10 to 50 carloads at a time. Another sale of medium sulphur coke involving 1500 tons for delivery over the remainder of year has been made at $4, ovens, which is considered a good price for the producers since other medium and high sulphur cokes have been sold at around $3.50. Foundry coke users continue to issue shipping instructions on their order, although following the settlement of the anthracite strike it was expected that buying would be somewhat curtailed. The foundry coke market, however, is far from active and price weakness develops from time to time as carload sales are made. What is termed standard selected 72-hour foundry fuel has been sold at $5.50 and even $5.25 has appeared in the spot market. Some of the better known brands which sold at $6.50 a week or two ago are now selling in small lots at $6, ovens. Higher than the $6 figure is being secured by producers of so-called premium coke. The coal market is exceedingly weak, as low as $2.25 f.o.b. mines being quoted on good by-product coal, and a price of $2.50 is named on high-grade lump gas coal. With $1.25 quoted on gas slack, the mine-run gas coal is quotable at $2. Steam slack is selling at 90 cents to $1 per ton, and other grades have declined from 10 to 25 cents per ton. Production of Connellsville coke, according to the *Connellsville Courier*, for the week ended Sept. 15 was 239,580 tons as compared with 256,800 tons the preceding week.

Demand Less Urgent

Boston, Sept. 25.—Foundries are less interested in getting in reserve stocks of coke than they were earlier in the month. Shipping instructions continue at about the same level, but spot business has dropped to a negligible amount. Prices remain unchanged at $13.50, delivered, for by-product, and $12 to $12.50, delivered, for beehive.

Foundry Sales More Active

New York, Sept. 25.—Trading in foundry coke is somewhat better. A large airbrake manufacturer has placed 1200 tons for shipment beginning immediatelv and continuing until the end of November. Prices are about the same as a week ago, and beehive foundry coke for spot shipment is bringing $5.25, Connellsville, or more, in accordance with the brand. The Seaboard By-Products Coke Co. continues to quote $11.34 to $11.52, delivered at Newark and other northern New Jersey points, for standard foundry coke.

Offer By-Product at Concession

Cincinnati, Sept. 25.—New business has not been especially active in the coke market during the past week. Demand is considerably less than it was a week ago. By-product ovens with contracts report that specifications are not absorbing their production and as a result considerable of this fuel is being sold below market levels. A leading seller reports the sale of 11 cars of New River foundry coke to a user in Wisconsin and eight cars of the same brand to a consumer in the St. Louis territory. A sale of 13 cars of Gauley Mountain coke by another seller also is noted. Demand for Connellsville foundry and furnace coke is at a low ebb. The movement of Wise county coke also is tapering off. The foundry grade is quoted at $6.50 to $7, ovens, while the furnace fuel is obtainable at $5.50, although two sellers are asking $6, ovens.

Foundry Coke Prices Easier

St. Louis, Sept. 24.—The recent drop in temperature has resulted in a quickening in the demand for domestic coke. Dealers have begun to stock up, and householders' orders are the largest so far this season. The total volume of this business, however, is considerably under normal. Prices are firm, and in many quarters the belief prevails that concessions will be made later on. The local by-product plants are in a position to cope with the demand, as their stocks have been increasing rapidly during the past few weeks. The demand for beehive foundry coke has subsided to some extent and the trend of prices is easier. Offerings from the East and South are more liberal, and the ovens seem anxious to place business. Some furnace coke has been sold to industrial users, but the aggregate has not been large. Purchasing of foundry coke is almost exclusively confined to small lots for prompt shipment, the largest sale reported in the week being 200 tons to a local specialty maker. An excellent grade of Connellsville 72-hour foundry coke is obtainable at $6 to $6.50, and slighty lower than that can be done on other brands.

Southern Prices Lower

Birmingham, Ala., Sept. 24.—Coke prices in the Birmingham district are lower. Beehive and by-product, foundry fuel can be purchased for $7.50. Producers have been holding at $8 for some time, but the market has weakened. The new price has not brought about any activity. By-product coke is plentiful, but the greater number of the by-product interests have no intention of curtailing production in the near future, as contracts require operation.

Pig Iron Market Is Dull

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nage. The lower prices, however, are chiefly for prompt shipment, as quite a number of the leading furnace interests are not mentioning any price for a period further ahead than 60 to 90 days. The chief local producer continues to quote $28 to $29, f.o.b. Granite City. Sentiment among buyers is in the main optimistic.

The Mississippi Valley Iron Co., whose stack has been out since October, 1920, save for a month's activity in May, 1921, has about completed relining. The furnace may blow in during the coming spring, possibly around the first of April.

Quiet Buying at Chicago

Chicago, Sept. 25.—More interest is noted in the pig iron market, and quiet buying is appearing. Consumers think the price is sufficiently low to allow covering for 30 to 60 days. Melters have no stocks, and buy spot iron in most instances. Foundries are melting steadily, as evidenced by a continued heavy consumption of coke. Signs point to a continued need for iron through the winter. An important producer has covered nearly half of its fourth quarter output. The market is quotable at $26, furnace. Rumors of $25 are found to refer to off-sulphur iron, sold at a concession. A Wisconsin melter wants 300 tons of foundry iron, and a Michigan user is in the market for 500 tons of southern iron. One lot of several hundred tons of foundry iron has been sold to a Chicago user at the market price. Silveries remain dull. An inquiry is pending for 200 to 300 tons of the 10 to 15 per cent grade. Lake Superior charcoal iron is quiet and unchanged. The market for low-phosphorus iron is inactive, with one sale of 500 tons to a Milwaukee user. Southern iron is available at $21, Birmingham, though most producers quote $23. The Iroquois stack at South Chicago has been blown out.

Southern Stocks Increase

Birmingham, Ala., Sept. 24.—Pig iron sales are small and for immediate delivery. Quotations generally are $24 for No. 2 foundry, though sales in the Chicago territory have been closed at $23 and less. Off-grades and general mixture sales have been made at $21 and $21.50, curtailment of operations is necessary as production exceeds new orders. The sale of 25,000 tons of pig iron to the United States Cast Iron Pipe & Foundry Co. last week by the Tennessee Coal, Iron & Railroad Co. included off-grade and low-grade iron. A radiator company has closed for 500 to 800 tons. Twenty-three blast furnaces are in operation; three by the Woodward Iron Co., five by the Sloss-Sheffield Steel & Iron Co., two by the Republic Iron & Steel Co., two by the Alabama Co., one by the Central Coal & Iron Co, and 10 by the Tennessee Coal Iron & Railroad Co. Some iron still is going to the surplus stock, and the report on October 1 will show that there is more than 110,000 tons on yards. Two smaller companies are rapidly clearing up their iron.

The Sloss-Sheffield Steel & Iron Co. blew out Tuesday its No. 2 City and the Florence blast furnaces leaving three furnaces of that company in operation, two at North Birmingham and one at Sheffield. This is part of the program of southern furnace interests to curtail production.

Philadelphia Week Is Dull

Philadelphia, Sept. 25.—The past week was the dullest in the pig iron market in the Philadelphia district for a long time. Only small sales were made and new inquiry at present is at a minimum. Not much opportunity has been afforded to test the market on foundry iron but it can be quoted at $24.50 to $25, eastern Pennsylvania furnace, plus 50 cents silicon differentials with the possibility of lower being done on large lots. The low phosphorus market also is untested by any sales or inquiries. One eastern consumer of basic has asked prices on tonnages but shows no indications of buying. Virginia foundry iron continues at $25, base furnace.

The Anthony Vail Tool & Machine Co., Gloversville, N. Y., has filed a petition in bankruptcy. Liabilities are listed at $52,272 and assets at the same amount.

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	Sept. 26, 1923	Aug. 1923	June 1923	Sept. 1922
PIG IRON				
Bessemer, valley del. Pitts....	$28.27	28.07	30.27	35.27
Basic, valley	25.00	25.00	27.35	34.27
Basic, eastern del., eastern Pa..	25.00	25.18	28.14	30.00
*No. 2 foundry, del. Pitts....	26.27	26.47	29.52	37.02
*No. 2 foundry, Chicago.....	26.00	27.10	31.50	32.00
*Southern No. 2, Birmingham..	21.00	23.60	26.75	26.25
*Southern Ohio, No. 2, Ironton.	24.50	26.00	28.25	33.75
**No. 2X, Virginia furnace	25.50	26.35	28.00	33.00
***No. 2X, Eastern del., Phila.	26.01	25.76	30.60	34.25
Malleable, valley	24.50	24.70	28.25	34.00
Malleable, Chicago.....	26.00	27.10	31.50	32.00
Lake Superior charcoal, Chicago	32.04	32.12	36.65	36.15
Gray forge, val. del Pittsburgh.	26.27	26.27	29.02	36.02
Ferromanganese, del. Pitts.....	114.79	122.29	129.79	80.59
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh.	42.50	42.50	42.90	39.50
Sheet bars, open-hearth, Pitts....	42.50	42.50	42.90	39.50
Billets, bessemer, Pittsburgh....	42.50	42.50	42.90	39.50
Billets, open-hearth, Pittsburgh..	42.50	42.50	42.90	39.50
FINISHED MATERIAL				
Steel bars, Pittsburgh.....	2.40	2.40	2.40	2.00
Steel bars, Chicago.....	2.50	2.50	2.50	1.98
Steel bars, Philadelphia.....	2.72	2.72	2.75	2.38

	Sept. 26, 1923	Aug. 1923	June 1923	Sept. 1922
FINISHED MATERIAL (Continued)				
Iron bars, Philadelphia.....	$2.67	2.72	2.72	2.33
Iron bars, Chicago mills.....	2.35	2.48	2.60	2.25
Beams, Pittsburgh.....	2.50	2.50	2.50	2.00
Beams, Philadelphia	2.77	2.82	2.82	2.38
Beams, Chicago	2.60	2.60	2.60	2.08
Tank plates, Pittsburgh.....	2.50	2.50	2.50	2.20
Tank plates, Philadelphia.....	2.77	2.82	2.85	2.58
Tank plates, Chicago.....	2.60	2.60	2.60	2.08
Sheets, blk., No. 28, Pittsburgh.	3.75	3.85	3.85	3.40
Sheets, blue anl., No. 10, Pitts.	3.00	3.00	3.00	2.50
Sheets, galv., No. 28, Pittsburgh.	5.00	5.00	5.00	4.40
Wire nails, Pittsburgh.....	3.00	3.00	3.00	2.70
COKE				
Connellsville furnace.....	4.25	4.45	4.65	11.00
Connellsville foundry, ovens....	5.25	5.20	5.50	12.75
OLD MATERIAL				
Heavy melting steel, Pittsburgh.	17.50	17.50	20.50	19.50
Heavy melting steel, eastern Pa.	17.00	16.05	18.65	17.10
Heavy melting steel, Chicago..	16.00	16.25	17.75	18.15
No. 1 wrought, eastern Pa....	20.00	17.50	22.75	21.25
No. 1 wrought, Chicago.....	17.50	17.05	16.95	19.95
Rails for rolling, Chicago.....	17.50	17.75	19.40	19.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon

Composite Market Average

Representing the Combined Average Prices per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago

Sept. 26, 1923	Sept. 19, 1923	August, 1923	June, 1923	September, 1922	September, 1913
$44.47	$44.70	$44.87	$46.46	$43.79	$25.55

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

Iron and Steel Prices

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Pig Iron

Bessemer, valley	$26.50
Bessemer, Pittsburgh	28.27
Basic, valley	25.00
Basic, Pittsburgh	26.77
Basic, Buffalo	24.00 to 24.50
Basic, del. eastern Pa.	25.00 to 25.25
Malleable, valley	24.50 to 26.00
Malleable, Pittsburgh	26.27 to 27.77
Malleable, Chicago	26.00
Malleable, Buffalo	24.50 to 25.00
Malleable, del., eastern Pa.	25.75 to 26.75

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.23
No. 2 Southern foundry	1.75 to 2.25
No. 2X East'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	26.26 to 27.26
No. 1X, Buffalo	25.00 to 25.50
No. 2 foundry, valley	24.50 to 25.00
No. 2 foundry, Pittsburgh	26.27 to 26.77
No. 2 foundry, Buffalo	24.50 to 25.00
No. 2 foundry, Chicago	26.00
No. 2 foundry, Granite City	28.00 to 29.00
No. 2 foundry, Ironton fur.	24.50 to 26.00
No. 2 foundry, Cleveland del.	26.00
No. 2, foundry del. Phila.	25.26 to 26.26
No. 2 foundry, N. J. tidewater	25.40 to 26.76
No. 2X, eastern del., Phila.	25.76 to 26.76
No. 2X, east. N. J. tidewater	25.90 to 27.26
No. 2X, eastern del. Boston	29.15 to 29.65
No. 2X foundry, buffalo, fur.	24.50 to 25.00
No. 2X, Buffalo, del. Boston	29.92 to 30.42
No. 2 southern, Birmingham	21.00 to 23.00
No. 2, southern, Cincinnati	25.05 to 27.05
No. 2 southern, Chicago	27.01 to 29.01
No. 2 southern, Philadelphia	28.80 to 30.80
No. 2 southern, Cleveland	27.01 to 29.01
No. 2 southern, Boston (rail and water)	27.91 to 29.91
No. 2 southern, St. Louis	26.17 to 27.17
No. 2X, Virginia furnace	25.50 to 26.00
No. 2X, Virginia, Phila.	30.77 to 31.27
No. 2X, Virginia, Jersey City	31.04 to 31.54
No. 2X Virginia, Boston	31.92 to 32.42
Gray forge, eastern Pa.	25.00 to 25.25
Gray forge, val. del., Pitts.	26.27
Low phos., standard, valley	30.00 to 31.00
Low phos., standard, Phila.	30.00 to 32.00
Low phos., Lebanon furnace	28.00
†Low phos. English, delivered Phila. territory	29.26 to 30.64
Charcoal, Birmingham	34.00
Charcoal, Superior, Chicago.	32.04

Silvery Iron

Jackson County, Ohio, furnace

7 to 8 per cent	$33.00
8 to 9 per cent	34.50
9 to 10 per cent	36.50
10 to 11 per cent	38.50
11 to 12 per cent	41.00
12 per cent	43.50

Bessemer Ferrosilicon

Jackson County, Ohio, furnace

10 to 11 per cent	$43.50
11 to 12 per cent	46.00
12 to 13 per cent	48.50

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$108.00 to 117.50
Ferromanganese, delivered, Pittsburgh	112.79 to 122.29
Spiegeleisen 19 to 21 per cent furnace or tidewater	40.00 to 47.00
Ferrosilicon, 50 per cent contract freight allowed	82.50
Ferrotungsten standard, per pound contained	88.00 to 90.00
Ferrochrome, 60 to 70 chromium, 4 to 6 carbon per pound contained, delivered	12.00
Imported ferrochrome, 4 to 6 per cent carbon	nominal

†Duty paid.

Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	$3.50 to $4.50
Ferro carbon-titanium, carloads, producer's plant, per net ton	$200.00

Coke

Beehive, Ovens

Connellsville furnace	$4.25 to 4.75
Connellsville foundry	5.25 to 6.00
New River furnace	8.00 to 9.00
New River foundry	11.50 to 12.00
Wise county furnace	5.25 to 6.00
Wise county foundry	6.50 to 7.00
Alabama furnace	6.50 to 7.00
Alabama foundry	7.25 to 7.50

By-Product

Foundry, Newark, N. J., del.	$11.34 to 11.52
Foundry, Chicago, ovens	13.50
Foundry, Boston, delivered	13.50
Foundry, Granite City, Ill.	13.00
Foundry, Alabama	7.25 to 7.50

Semifinished Material

BILLETS AND BLOOMS

4 x 4-inch base

Open-hearth, Pittsburgh	$42.50
Open-hearth, Youngstown	42.50
Open-hearth, Philadelphia	46.67 to 47.67
Bessemer, Pittsburgh	42.50
Bessemer, Youngstown	42.50
Forging, Pittsburgh	47.50
Forging, Philadelphia	51.67 to 52.67

SHEET BARS

Open-hearth, Pittsburgh	$42.50
Open-hearth, Youngstown	42.50
Bessemer, Pittsburgh	42.50
Bessemer, Youngstown	42.50

SLABS

Pittsburgh	$42.50
Youngstown	42.50

WIRE RODS

¼-inch and finer

Wire rods, Pittsburgh $51.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.40c
Universal skelp, Pittsburgh	2.40c
Sheared skelp, Pittsburgh	2.40c

Shapes, Plates and Bars

Structural shapes, Pittsburgh	2.50c
Structural shapes, Phila.	2.72c to 2.82c
Structural shapes, New York	2.74c to 2.84c
Structural shapes, Chicago	2.60c
Tank plates, Pittsburgh	2.50c
Tank plates, Philadelphia	2.72c to 2.82c
Tank plates, New York	2.74c to 2.84c
Tank plates, Chicago	2.60c
Bars, soft steel, Pittsburgh	2.40c
Bars, soft steel, Philadelphia	2.72c
Bars, soft steel, New York	2.74c
Bars, soft steel, Chicago	2.50c
Bars, refined iron, Pittsburgh	3.25c to 5.00c
Bars, rail steel, Chicago	2.30c
Reinforcing bars, Pittsburgh	2.20c to 2.40c
Bar iron, common, Phila.	2.67c to 2.72c
Bar iron, common, New York	2.69c to 2.74c
Bar iron, common, Chicago	2.35c to 2.40c
Bars, forging quality, Pitts.	2.62c

Hoops, Bands, Shafting

Hoops, Pittsburgh, large	3.00c to 3.15c
Hoops, Pittsburgh, small	3.50c
Bands, Pittsburgh	3.00c to 3.15c
Cold finished steel bars, Pittsburgh base	3.25c
Steel shafting, Pittsburgh	3.25c
Cotton ties, bundle 45 lb. Pittsburgh	$1.63

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	30.00 to 35.00
Relaying rails, Pittsburgh	30.00 to 34.00
Light rails, 25 to 45, mill	2.15c to 2.25c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	3.15c
Spikes, small railroad, Pitts.	3.50c
Spikes, boat and barge, Pitts.	3.50c
Spikes, railroad, Chicago	3.25c
Track bolts, Pitts. Standard	4.00c
Track bolts, Pitts., small	4.75c to 5.00c
Track bolts, Chicago	4.25c
Tie plates, Pittsburgh	2.60c
Tie plates, Chicago	2.60c

Spike, tie plate and truck bolt prices for carlots.

Wire Products

To Jobbers in Carloads

Wire nails, Pittsburgh	3.00c
Galv'd nails, 1-inch and over	5.25c
Plain wire, Pittsburgh	2.75c
Annealed wire, Pittsburgh	2.90c
Galvanized wire, No. 9 gage, Pittsburgh	3.35c
Barbed wire, painted, Pitts.	3.45c
Barbed wire, galv., Pitts.	3.80c
Polished staples, Pittsburgh	3.45c
Galvanized staples Pittsburgh	3.80c
Coated nails, count keg, Pittsburgh	2.70c
Woven wire fencing (retailers)	65 off
Woven wire fencing (jobbers)	67½ off

Chain, Piling, Strip Steel

Chain, 1-in. proof coil, Pitts.	6.50c
Sheet piling base, Pittsburgh	2.55c
Hot rolled strip steel, Pittsburgh stamping quality	3.00c to 3.15c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, 0.100-inch and heavier, base	5.00c

Sheets

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	3.75c to 3.85c
No. 28, bessemer, Pitts.	3.75c to 3.85c
No. 28, open-hearth, Phila.	4.07c to 4.17c
No. 28, open-hearth, Chicago.	4.09c to 4.19c

TIN MILL, BLACK

No. 28, open-hearth, Pitts.	3.85c
No. 28, open-hearth, Chicago	3.84c

GALVANIZED

No. 28, open-hearth, Pitts.	5.00c
No. 28 bessemer, Pittsburgh	5.00c
No. 28, open-hearth, Phila.	5.32c
No. 28, open-hearth, Chicago	5.34c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	3.00c
No. 10 bessemer, Pittsburgh	3.00c
No. 10, open-hearth, Phila.	3.32c
No. 10, open-hearth, Chicago	3.34c

AUTOMOBILE SHEETS

No. 22 Pittsburgh	5.35c

Tin Plate

Per 100 lb. box

Tin plate, coke base, Pitts.	$5.50

Iron and Steel Pipe

Base Discounts Pittsburgh to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Cast Iron Water Pipe

Class B Pipe

Four-inch, Chicago	63.20 to 65.20
Six-inch and over, Chicago	59.20 to 61.20
Three-inch, Birmingham	59.00 to 60.00
Four-inch, Birmingham	53.00 to 54.00
Six-inch and over, Birmingham	49.00 to 50.00
Four-inch, New York	68.60
Six-inch and over, New York	63.60
Standard fittings, Birmingham, base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B.

Scrap Weakens Further

General Revision of Prices Downward Reflects Uncertainty of Large Buyers—Resumption of Buying Looked for Before Winter Appears

SCRAP PRICES, PAGE 914

Chicago, Sept. 25.—Dealers in iron and steel scrap at Chicago find the market quiet and consumers uncertain whether conditions warrant taking on further tonnage at present. One important consumer of open-hearth steel grades is offering to place tonnage, if dealers will accept it, at $16 per gross ton for heavy melting steel. The latter are slow to take this business because they are now paying $16.50 for steel to apply on existing contracts. Other steel consumers are not interested.

Some activity is noted in the foundry grades, but this business is moving mostly in small lots and for current needs. Rolling mills are running at a low rate and are not taking scrap.

The Sante Fe railroad offers a list of 4300 tons, included in which are 500 tons of No. 1 wrought and 600 tons of heavy melting steel. The Chicago Surface Lines offer 1000 tons and the Big Four has issued an open list.

Trading Is Dull

Boston, Sept. 25.—Except for the demand from two Pennsylvania steelworks iron and steel scrap trading has been dull in New England during the past week. Two Pennsylvania consumers offered prices for heavy melting steel which have made it possible for dealers to buy locally at $12.50 to $13 on cars, shipping point. Nearly 1000 tons has been placed against these offers during the past week and more is in prospect. A modest demand for chemical borings at $13 is reported from New Jersey. Mixed borings and turnings have dropped to $8.50. Low offerings and small demand mark the cast scrap market.

Activity Still Is Lacking

New York, Sept. 25.—While prices on iron and steel scrap are largely unchanged, the activity noted a couple of weeks or so ago is lacking. Trading is slack, and the prospect of higher prices in the near future is more remote. In some quarters, doubt is expressed if there will be any real movement until the threat of winter forces consumers to buy. At present they are buying cautiously, purely on a hand-to-mouth basis, and within the past week a Phoenixville, Pa., and a Harrisburg, Pa., consumer have temporarily dropped out of the market. Demand for borings and turnings is especially dull; also for wrought materials. Cast scrap is moving fairly well, but principally to consumers in this district. The scarcity of machinery cast has become more marked. A dealer with a prospective order for 500 tons or so would have difficulty in buying up enough material to meet it. A lot of about 200 tons of stove plate recently went to a Bridgeport, Conn., consumer at $18.50, delivered. An offer of $17, delivered, by a Mahway, N. J., consumer was rejected here by a dealer who refused to shade $17.50, delivered.

Demand Is Better

Philadelphia, Sept. 25.—More business is being transacted in the iron and steel scrap market here than in recent weeks, especially in heavy melting steel and iron axles which, because of their scarcity, sold higher. Iron car wheels were sold at $22, forge scrap at $14 and knuckles and couplers at $22.50. Considerable railroad malleable is being sold at $20.50 and $21. The general level of actual selling prices is higher, although in some quarters of the scrap trade a pessimistic sentiment continues pronounced.

Buyers Have Left Market

Buffalo, Sept. 25.—Buyers have withdrawn from the iron and steel scrap market as suddenly as they appeared a week or so ago. Selling has stopped temporarily and the market is weaker. Plants have apparently covered for the time being and will not buy for a while. Dealers describe the setback as temporary. Some are paying as high as $18 to $19 for heavy melting steel showing that they have confidence in the ability of the market to come back soon.

Buying Still Is Limited

Cleveland, Sept. 25.—Iron and steel scrap continues to move in limited quantities, consumers buying simply to meet current needs. Inquiries are unimportant and there is nothing appearing in the trade to indicate heavy tonnage purchases in the near future, consumers apparently waiting for lower prices. The market is soft, several grades being marked down 50 cents a ton including axle turnings at $15.25 to $15.50; cast borings, $12.75 to $13; large drop forge flashings, $12 to $12.50; small drop forge flashings, $12.50 to $12.75; heavy melting steel, $16.25 to $16.50; No. 1 railroad wrought, $14.75 to $15; old steel rails for melting, $15.50 to $15.75; steel rails for rolling, $19.50 to $19.75.

Mills Making Enough Scrap

Pittsburgh, Sept. 25.—Explanation for the present dearth of scrap orders from steel plants is found in the fact that while finishing departments are working 80 per cent of capacity, many open-hearth or bessemer departments are operated at only about 50 per cent. Scrap use and scrap manufacture are, therefore, in some cases equal to each other, making it unnecessary to buy in the open market. Other consumers have scrap on their stockpiles which they now are utilizing; others have it coming in on old orders. Some of these contracts are expiring and for any overages delivered they will only pay on the basis of $17.50 for heavy melting steel. This creates a wide spread in the heavy melting steel market, since some dealers are paying $18 and $18.50 to cover shorts. Embargoes still are on in certain directions, indicating that present stocks exceed current needs.

Market Continues Dull

Cincinnati, Sept. 25.—Iron and steel scrap continues dull and weak. Practically every item on the list declined 50 cents during the past week. The general trend of the market is downward and as a result there is less speculative buying on the part of dealers. During the past three weeks a heavy volume of scrap has been moving into local yards. The Chesapeake & Ohio closed today with a list involving approximately 9000 tons. Not much change in existing conditions is looked for before the middle of October. Most users are well supplied for the next 30 days, but reserves are decreasing and with the present melt continuing, purchasing will be unavoidable next month. Mills and foundries are taking in material delivered, there being practically no requests for delayed deliveries.

Downward Tendency Noted

Detroit, Sept. 25.—Iron and steel scrap market shows a downward tendency from a week ago. Most prices are off 50 cents while foundry grades of malleable and heavy cast are stronger, dealers' prices on these grades being up $1, although supplies are not as large as other kinds. Borings and turnings which recently had a rapid upward swing in price are now moving in the opposite direction. Consumers are not in the market to any great extent. Surveys of mill needs made by dealers indicate consumers are not willing to follow the market upward. They have sufficient stocks of scrap on hand for present needs.

Mill Buying is Light

St. Louis, Sept. 24.—The market for iron and steel scrap continues almost exclusively a dealers' proposition. Purchasing by the mills is in light volume, and on a hand-to-mouth basis.

The policy of all users seems to put off quantity buying as long as possible, and to purchase fill-in needs in the spot market. Contracts are beginning to run out, and with reserve stocks moderate, dealers are looking for a revival in activity on the part of consumers early in October.

Yard stocks in this district are unusually light, the total being not much in excess of 25,000 tons of all varieties. Yardmen have been purchasing heavily of railroad offerings. Nothing is coming in from the country, present scrap prices and railroad rates militating against gathering and shipping at outlying points. Foundry grades are scarce and comparatively strong. There was a better demand for relaying rails. One local interest reports the sale of 20 miles of 75-pound rails to a small southwestern road.

Recent railroad lists all have been closed, and for the most part top prices were realized. The only new lists out were 350 tons by the Kansas City, Mexico and Orient, 600 tons by the Kansas City Terminal railway and a large blank list by the Big Four.

Old Contracts Are Cut

Birmingham, Ala., Sept. 24.—The iron and steel scrap market in the Birmingham

district still is lagging. New business is slow and melters are asking for concessions when they are buying. Considerable scrap is moving on old contracts but dealers have made cuts in price on old contracts to get consumers to take their tonnages quickly. One such order was for 1200 tons of a certain class of old material and the saving to the company was around $1500. Quotations are weak. Larger dealers in this district are pursuing still the policy of keeping their stocks intact and as they deliver, are replenishing.

Wire Buying

Continues on Even Keel With Better Business in Prospect

WIRE PRICES, PAGE 847

Pittsburgh, Sept. 25.—Within the next 30 days, heavy business is expected by wire products makers, since numerous specifications on contracts are due if the deliveries are to be made in time for the fall trade. In fact, already an improvement in mixed carload buying is noted and the mills are maintaining average operating rates of around 85 per cent. Nails are still in keen demand. Some jobbers are replenishing their stocks; others are ordering for work already started and as yet have not commenced to build up their own stocks. Some large users too are buying small lots direct. Prices are for the most part firm, although some Ohio makers are naming the Pittsburgh base prices, f.o.b., their mills, relinquishing some of their freight advantage. Plain wire is 2.75c, base Pittsburgh, while wire nails are 3.00c, base Pittsburgh.

Western Demand Is Stronger

Chicago, Sept. 25.—Inquiry for wire and nails is increasing after the lull of the late summer, but has not yet reached the point where bookings are equal to shipments. As a result, deliveries are being brought nearer and fairly good promises can be made. Barbed wire is available for immediate delivery as this department is relatively slow. The slight bulge in buying of barbed wire recently was to supply material for late season work on farms, which has passed, and buying for spring work is not due to start for some time. Prices are unchanged and are not being shaded.

Deliveries Are Easier

New York, Sept. 25.—The wire and nail market here continues to hold firm at 2.75c, base Pittsburgh, for plain wire and 3.00c, base Pittsburgh, for nails. Deliveries on plain wire now range from two to four weeks; on galvanized wire, four to eight weeks and on nails, three to four weeks. New business at present appears to average about 70 per cent.

New England Buying Picks Up

Boston, Sept. 25.—Wire consumers in Worcester all have been active in the market during the past week. One company bought 2500 tons of wire rods and wire, and other interests 300 or 400 tons each. Demand for nails and wire products throughout the district shows an improvement during the past week.

Semifinished Users Wait

Buyers in Hope of Developing Lower Prices, but Nothing Below $42.50 Is Available on Sheet Bars—Wire Rods Wanted for Japan

SEMIFINISHED STEEL PRICES, PAGE 847

Youngstown, O., Sept. 25.—Rumors of a drastic cut in the price of sheet bars covering a large tonnage for immediate shipment have permeated the trade but close investigation failed to disclose a price in this district below $42.50, Youngstown. A spot sale of 1000 tons of open-hearth sheet bars was placed late last week at $42.50, Youngstown, in addition to large tonnages against contracts. Specifications for sheet bars coming from district consumers this week were sufficient to keep semifinished mills engaged at normal capacity, although signs of a slowing down of production programs are apparent as the volume of sheet business begins to lag.

Market Firmer in East

Philadelphia, Sept. 25.—Billet sales in this district in the past week totaled 1500 to 2000 tons, all for quick shipment. All consumers have been following a policy of buying hand to mouth. A number of them will need more material shortly. Generally the market is $42.50, base Pittsburgh, for rerolling billets, and $47.50 for forging quality, with shading in exceptional instances. The market is much firmer than a few weeks ago. Wire rods continue quotable at $51, base Pittsburgh.

Sheet Bar Price Firm

Cleveland, Sept. 25.—While the price done on slabs sold in this district has been shaded, as noted in IRON TRADE REVIEW two weeks ago, and more recently on billets, the quotation on sheet bars remains firm at $42.50, valley. There have been some rumors in the market of less than this price on sheet bars, but no evidence can be found to substantiate them, while additional sales went at $42.50, valley.

A valley interest in the week sold 4500 tons of sheet bars for fourth quarter delivery in this territory at $42.50, valley.

Large buyers say this price cannot be bettered. A Cleveland hardware company that was inquiring for 1200 tons of 2 x 2-inch and 4 x 4-inch billets last week is understood to have closed for only a small portion. Except for small tonnages, occasionally brought up to test the market, or fill out immediate requirements, business in semifinished material here is quiet.

Deferred Fourth Quarter Action

Pittsburgh, Sept. 25.—Small blocks of semifinished tonnage, mostly billets or slabs, 500 to 2000 tons, are closed from time to time. Occasionally a larger lot is noted. Many users, particularly among the sheet conversion mills, continue to defer their fourth quarter purchases to see whether the price structure will weaken. So far as can be learned, nothing below the $42.50 level has developed and any deals that have transpired have involved that figure as a basis, either Pittsburgh or Youngstown. One sale of 1¼-inch billets, however, is noted where the $2 differential for size made the base price $44.50, but those quoting that level lost the business and the order is understood to have been taken at $42.50, base. One sale of a few hundred tons of slabs to a nearby user was made this week at the $42.50 level. Other sales of slabs have recently been made in northern Ohio at concessions from $42.50. Last week about 4000 tons of tin bars was sold by a Pittsburgh maker to a user in Youngstown at the full $42.50 figure, but on a Youngstown basis. Efforts generally to obtain concessions are numerous but so far have failed to attract producers. Some inquiries for wire rods are current from abroad, a few being circulated by New York houses for shipment to Japan. The usual price is $51, Pittsburgh, although in Youngstown recently a $52 price appeared. Skelp activity still appears to be confined to deliveries on contracts and so far as can be learned the carryover from the third quarter will be sufficiently large to make fourth quarter contracting activity somewhat negligible. The price is unchanged at 2.40c, base Pittsburgh.

Good Tonnage

Specified Against Tin Plate Contracts But New Business Is Light

TIN PLATE PRICES, PAGE 847

Pittsburgh, Sept. 25.—The majority of tin plate producers have good backlogs of orders against which they receive specifications promptly since the bulk of the plate business is needed during the fore part of the last quarter. Consequently, the present call for tonnage on the various mills constitutes a heavy aggregate although new business is light. New inquiries are fair, however, although at times some of these drop out from sight because proper deliveries cannot be obtained. The American Sheet & Tin Plate Co. is unable to increase its operating schedules, it being practically impossible to gather together the requisite number of 30-men crews to man additional tin mills. Its output is obligated to the end of the year and it expects that the year will end without all of its customers' needs being met unless more men can be employed to bring about at least a 90 per cent operation schedule. Independent producers likewise have good order books and practically no tonnage is available before the middle of November except from stock lists. On production plate the price is firm at $5.50 per base box of 100 pounds, Pittsburgh. Demands from abroad, particularly Japan, show some increase, considerable tonnage being utilized by fishing industries in Scandinavia for Japanese consumption. Oil interests there, too, are inquiring. Recent sales have involved 1000, 3000, 5000 or 10,000 base boxes at a time.

Bar Buying Still Lags

Some Deliveries Now Possible in Three Weeks—Fourth Quarter Specifications Indicate Increased Demand—Price Is Firm at 2.40c, Pittsburgh

BAR PRICES, PAGE 847

Chicago, Sept. 25.—Consumers of soft steel bars show no signs of slackening their operations and consumption of bars is continuing unchanged. Buying is not as heavy as earlier in the year but pressure for delivery is as strong as during the summer. While consumers are not pressing mills for contracts, practically all are covering their estimated requirements for three to six months where they are able to place the business.

Automotive industries are active and agricultural implement manufacturers are showing a marked improvement in demand for their products, which is being reflected in their buying of steel. Some of the latter are operating their plants at about 80 per cent of capacity. It is noted by steel suppliers that forge companies are unusually busy and are requiring considerable steel. Soft steel bars are unchanged and steady at 2.60c, Chicago mill. Demand for bar iron is moderate and while mills have fairly good backlogs, they are able to offer from two to four weeks delivery, which is unusually close for this product.

Buying is coming from general users, with railroads taking about their usual share. The market is quotable at 2.35c to 2.40c, Chicago mill. Rail steel bars are in light demand and producers are either down or operating on part schedule. This material is quoted at 2.30c, mill.

Mills Still Well Booked

Philadelphia, Sept. 25.—Demand for steel bars in this district is quiet. Mills generally have sufficient tonnage on their books to maintain capacity operations until early in October, but some will need additional orders to fill out the schedules for that month. Price is well maintained at 2.40c, base Pittsburgh, equivalent to 2.72c, delivered Philadelphia, by the large mills. Iron bars can now be had at 2.35c, base Pittsburgh.

Contract Arrangements Being Made

Pittsburgh, Sept. 25.—Several fourth quarter customers of merchant steel bar producers have entered into contract arrangements for the fourth quarter. In some cases these equal and in others exceed third quarter contract tonnages. Specifications keep up well and from all appearances the fourth quarter is going to be a better period from a tonnage standpoint than was the third quarter.

Spring steel users, cold-drawn steel bar and shafting producers, as well as other bar consumers are on the active list. While in one or two cases hesitancy is encountered where lower prices are expected, most buyers have made up their minds that the 2.40c, base Pittsburgh, price cannot be shaded and that it will continue to apply for some time to come.

Deliveries are somewhat easier among independent producers than with the Carnegie Steel Co. and on that account the latter interest is somewhat out of the running on current business. On some sizes of hexagons and rods Carnegie company cannot deliver inside of five months; in other sizes and forms delivery has become considerably easier. Independents are in a somewhat more favorable position, certain sizes being as near as three weeks. Refined iron bars are unchanged at from 3.25c up; on certain kinds 5.00c is quoted and on others even higher levels apply. Demand is somewhat slack although occasionally an attractive tonnage is placed.

Auto Builder Wants Tonnage

Cleveland, Sept. 25.—A large manufacturer of automobiles in northern Ohio is inquiring for a round tonnage of bar material to cover its requirements for the balance of the year. It is understood at least 4000 tons for October delivery alone will be required and corresponding tonnages for the remaining months. Slightly more new buying of bars has been shown in this district the past week than the previous period which was dull but the market still is inactive. Consumers now are receiving material more freely from the mills as deliveries ease up their lower priced tonnage placed some months ago and as their requirements are well covered, they are deferring new purchases for the present. Few hold-ups are reported, however. Mill schedules have become more flexible so that new orders in certain forms and sizes can be fitted in for comparatively early shipment. In cases of this sort some of the larger mills now can promise delivery in three to four weeks. Prices show no deviation from 2.40c, Pittsburgh. The Pennsylvania and other railroads have announced an advance effective Oct. 7 in the short-haul rate from Pittsburgh to Youngstown from 9½ to 11 cents per 100 pounds and a similar advance from Youngstown to Cleveland. This will remove the unusual situation which heretofore has existed where the addition of the two short-haul rates from Pittsburgh to Youngstown and from Youngstown to Cleveland respectively or 19 cents was less than the through rate of 21 cents. The steel companies have asked for a hearing on the proposed advance.

Sales Still Are Heavy

Boston, Sept. 25.—Bar sales in New England while showing a lower tonnage than a week ago still are heavy and September will undoubtedly show a total above normal. Prices are decidedly firm at 2.50c in the face of shading in other material. One order for 500 tons for last quarter has been entered and inquiry for last quarter totals many thousand tons.

Cold Drawn Tonnage Reduced

Pittsburgh, Sept. 25.—Unfilled tonnage on the books of the cold-drawn steel bar producers has been somewhat reduced of late because of progress made in deliveries on back orders. New business, however, has been coming in at a fair rate from week to week from diversified lines of manufacturing activity. Mostly single carloads, although occasionally a larger tonnage, 200 tons of more, are placed. Buyers all over the country however, are confining their purchases to immediate needs. Despite the fact that in one or two directions a lower mill price is developed, local manufacurers are holding firmly to the 3.25c base Pittsburgh, level almost without exception. Operations average between 85 and 90 per cent of capacity.

Nut, Bolt, Rivet Buying Is Hand-to-Mouth

NUT AND BOLT PRICES, PAGE 910

Pittsburgh, Sept. 25.—Hesitancy to buy nuts, bolts and rivets for delivery far into the future is perhaps more manifest than in other lines of finished steel products. Easy delivery conditions prevail; almost any size can be delivered within two or three weeks and users accordingly buy only what they need at present, usually single carloads. Jobbers have been somewhat more active of late in replenishing their stocks and some of the larger users have been placing orders for a carload or two at a time. Not enough rivet business is current to satisfy all makers, hence there is more anxiety to share in the current tonnage. Prices accordingly are soft, although rivets are quotable still on a 3.00c to 3.10c, base Pittsburgh level.

Buy Freely for Fourth Quarter

Chicago, Sept. 25.—Consumers of bolts and nuts are closing their contracts for fourth quarter material and it seems likely that practically all who buy in this way will have covered their requirements within the next few days. At the same time specifications against third quarter needs are being filed liberally as consumers desire to take all they can under those contracts, inasmuch as the new lists go into effect on fourth quarter contracts.

Improvement Is Reported

Cleveland, Sept. 25.—Considerable improvement in demand for bolts and nuts is reported by makers here. Buying against third quarter contracts are in fair size and considerable inquiry is out for fourth quarter material, on which business is expected to be placed. The railroads are entering the market for fairly large amounts and the general manufacturing demand is reported better than in some time. Prices are firm.

Rivet demand also is improved slightly. The railroads, tank builders and the general manufacturing trade are furnishing general specifications against third quarter bookings and the business placed in the aggregate represents a fair sized tonnage. Spot buying is not large, but prices are firm at the established level. The leading maker has not yet opened its books for fourth quarter business.

Hoop Buying Is Limited

HOOP PRICES, PAGE 847

Pittsburgh, Sept. 25.—Future buying of hoops and bands is negligible, users confining their purchases to actual needs. Some producers have good

backlogs of orders from various consumers, and some have contracts from coopers and automotive parts makers, against which specifications are furnished regularly. From 3.00c to 3.15c, base Pittsburgh, is the present range, the maximum being generally adhered to except in the case of rimstock buyers.

Strip Buying Is Fair

STRIP PRICES, PAGE 847

Pittsburgh, Sept. 25.—Week to week buying in hot and cold-rolled strip steel represents a fairly large aggregate. Individual orders are small, buyers usually limiting their orders and refusing to buy far ahead. Numerous single carloads are being bought by automotive parts makers and other lines of manufacture, with occasional larger tonnages. Cold is firm at 5.00c, base Pittsburgh, but in connection with hot-rolled there has been some shading of late from the 3.15c, base Pittsburgh level, some makers quoting 3.00c. Some makers note a fairly well balanced demand for both grades; others report that the majority of their sales is in cold-rolled.

W. C Agnew, Iron Ore Pioneer, Dies

William C. Agnew, general manager of the Mahoning Ore & Steel Co., controlling the Mahoning Iron ore mine, at Hibbing, Minn., one of the largest open pit mines in the Lake Superior district, died at his home in Duluth, Saturday, Sept. 22. Mr. Agnew was a pioneer in the Lake Superior iron mining district. He was one of the first of the engineers to go from the Youngstown district to that district. He was a member of the group that opened the Mahoning mine in 1895 and organized the company. A number of iron and steel companies, including the Bethlehem Steel Co., now have an interest in the mine.

Mr. Agnew was active up to the time of his death, though he was about 73 years old. He leaves a son, J. C. Agnew, formerly assistant to the president of the Midvale Steel & Ordnance Co., who is now engaged in business for himself in Philadelphia. At one time W. C. Agnew was associated with the Andrews & Hitchcock Iron Co. at Youngstown, now part of the Youngstown Sheet & Tube Co.

Car Loadings Again High

Washington, Sept. 25.—Loadings of revenue freight cars in the week ended Sept. 15 again passed the million mark, with a total of 1,060,580, a gain of 131,722 cars during the week ended Sept. 8 when the total reflected the Labor day holiday. Of the Sept. 15 total, 171,830 cars were loaded with coal, 13,704 with coke and 76,661 with ore. The Austro-American Magnesite Co. intends to petition that the hearing on the magnesite tariff scheduled for Oct. 1 be postponed to Dec. 5. The net car surplus for the week ended Sept. 15 was 56,835.

Plate Tonnage Is Lacking

Further Letdown in Orders Indicated by Week's Transactions—Lake Boats Pending—Tank Work Developing at Chicago

PLATE PRICES, PAGE 847

New York, Sept. 25.—Concessions are being granted in some cases by eastern mills on desirable tonnages of plates. One eastern mill during the past week booked an order involving around 400 tons at 2.35c, base Pittsburgh, but the plates are to be delivered to a nearby consuming plant, so that the mill price is much more favorable than is indicated by the Pittsburgh price. On some business, 2.40c has been done. Included in the trading of the past week was one lot of 1000 tons. Generally, however, the demand involves small tonnages and the total bookings while showing an improvement as compared with July and August sales, are considerably less than shipments. The large Pittsburgh mills continue to quote 2.50c, base Pittsburgh, equivalent to 2.84c, delivered New York, on the general run of business. None of the shipbuilding inquiries on which bids recently have been submitted, have been closed. Bids have gone in on combination freight and passenger vessels for the Southern Pacific railroad involving 3500 tons of steel. No new inquiries for ships are before the trade. The oil storage tank market continues devoid of activity. The Texas Co. placed a small tonnage. The Sun Co. has taken no action on a tank inquiry involving about 100 tons. The Standard Oil Co. of New Jersey has not yet taken any action on its recent inquiry for tanks involving 9000 tons of plates and it is not considered likely that this business will develop at this time. It is understood that the Pan American Oil Co. has purchased 6000 tons of plates for fabrication into tanks in its California shops. The New York Central railroad will open bids Oct. 3 for a tonnage of plates, and other steel.

Large Tank Orders Placed

Chicago, Sept. 25.—Buying of oil storage tanks has started and business placed in the past week will require 14,000 tons of plates, while it is understood the complete program of the important oil companies will involve a total of 40,000 to 50,000 tons. The Chicago Bridge & Iron Co. has taken tanks for the Pan-American Petroleum Co., involving 6000 tons of plates. The Graver Corp. has booked 1200 tons for the Invincible Oil Co., 600 tons for the Utah Oil Co., 3000 tons for various projects in California, and 3200 tons for tanks for the Independent Oil & Gas Co., the Delmar Oil Co., the Simpson-Fells Co. and the Burt Franklin Co. With the probable purchase of several thousand freight cars during the fourth quarter, prospects for heavy plate bookings are excellent. Plates continue steady at 2.60c, Chicago mill.

September Better Than August

Pittsburgh, Sept. 25.—In spite of the fact that plate business is dull, specifications for September promise to exceed those of August in one or two cases, and to equal them in others. Not much buying for the future is encountered. Oil companies are plugging up their wells due to the poor condition of the oil market, and hence no new oil storage tank inquiries are out. The Carnegie Steel Co's plate deliveries still are several weeks deferred but specifications against orders are fairly large and come from a miscellaneous group of buyers. The Pittsburgh-Des Moines Steel Co. was awarded 200 tons of steel, mostly plates, for the American Construction & Securities Co., South Side, Pittsburgh, for miscellaneous tank work. One or two inquiries involving similar tonnages are now current. The price is unchanged at 2.50c, base Pittsburgh.

Eastern Market Quiet

Philadelphia, Sept. 25.—Eastern plate mill operations are lower and now are averaging 40 to 50 per cent of capacity. Orders have shown a slight improvement in the aggregate, but not enough to increase operations. Some mills do not know what they will roll a week after next, although from the way orders keep coming in every day it is likely that single turn production can be maintained by all. The leading inquiries come from outside this district. They include 17,000 tons for rivet pipe line for Portland, Oreg., and 5000 tons for oil tanks for the Pacific coast. The market is quotable at 2.40c to 2.50c, 2.50c is exceptional and reserved for the most attractive tonnages.

Car Floats Before Yards

Cleveland, Sept. 25.—Inquiries have been put out by the Canadian National Railways for two car ferries requiring 2600 tons of steel each and lake shipyards now are bidding for these. Other shipyard work of importance remains in a pending stage on the lakes. No action yet has been taken by the Ford Motor Co. on the two ore freighters which have been up for bids. A report is current that the Ford Motor Co. may order considerably more than two vessels from lake yards, the boats other than the ore carriers to be used for its own manufacturing and delivery purposes. New buying of plates continues to total fair proportions. Mills in this territory able to promise early shipments now are quoting 2.50c, Pittsburgh but are able to obtain a satisfactory tonnage of business for nearby or western delivery. Pittsburgh and valley mills continue to quote 2.50c, Pittsburgh, firmly. None of the shading of price attributed to eastern mills has appeared in this district. Eastern makers offering tonnage for quick delivery in this territory continue to quote 2.50c, mill, and in exceptional cases at a figure equalizing 2.50c, Pittsburgh.

The Ohio State Trust & Savings bank has been appointed receiver for the Ohio Pumping Machinery Co. of Akron, O. Bond was fixed at $25,000. The company was organized about a year ago with an authorized capital of $350,000. The plant is only about one third completed.

Concrete Buying Holds Up

Lettings Continue to Aggregate Good Total Although Individually of Small Tonnage—Prospective Business Continues Good

REINFORCING BAR PRICES, PAGE 847

Cleveland, Sept. 25.—Prices for reinforcing bars from stock continue to be well maintained at the 2.75c, base Pittsburgh, figure, although on average large tonnages this is being shaded. Although awards continue to be individually of small tonnage, prospective business promises to bring out several large jobs, among which are the Brotherhood of Locomotive Engineers bank building, the city-county building, each requiring a large tonnage and the Fisher Bros. warehouse, which will need about 500 tons.

Truscon Steel Co. was awarded the 415 tons of bars in the State street bridge, Akron, O., announced last week as going to an Ohio merchant. New steel bars are firm at 2.40c, base Pittsburgh, and rerolled are being quoted at 2.20c to 2.25c, base mill.

Sales Have Increased

New York, Sept. 25.—While reinforced concrete bar sales were small in the aggregate in this territory during the past week, the number of tentative projects has increased and it is expected that an improved volume of business will characterize the market in the next few weeks. While all of the leading makers continue to hold their price at 2.40c, base Pittsburgh, smaller mills in some instances have quoted lower. On warehouse stocks the usual price on attractive lots is 2.50c, base Pittsburgh.

Inquiries and Awards Small

Pittsburgh, Sept. 25.—With one exception, inquiries for concrete bars developing during the past week have been small. The exception is the request for prices on 425 tons from Cleveland for the West Twenty-fifth street bridge understood to be in connection with the Union depot development project. Local inquiries before the trade involve 15 to 25 tons each. Awards of late likewise have involved small tonnages although one involving 115 tons is to be placed this week. While the mill price is unchanged at 2.40c, base Pittsburgh, some fabricators are apparently willing to sacrifice some of their profit or some of their advantage on freight, one job involving 85 tons being recently let in the Pittsburgh district at 2.50c, delivered.

Prices Weaker at Chicago

Chicago, Sept. 25.—Shading of the nominal quotation of 3.00c, Chicago warehouse, has resulted in the market level declining and a quotation of 2.75c to 2.85c, Chicago warehouse, now represents the market. On small lots 2.85c is the usual quotation while the heavier tonnages command the lower figure. It is certain that even less than these have been done and on one comfortably large tonnage 2.65c, Chicago warehouse, probably represents the price. The contract for the Crawford avenue addition to the Commonwealth Edison Co's. plant has practically been placed, subject to approval. This involves 450 tons.

CONCRETE CONTRACTS PLACED

Awards this week	7,990 tons
Awards last week	3,799 tons
Awards two weeks ago	5,640 tons

2000 tons, wharf at Houston, Tex., to Knoxville Iron Co.
1300 tons, Olympic hotel, Seattle, Wash., to local maker.
1200 tons, Dexter-Horton building, Seattle, Wash., to local maker.
750 tons, pier at Charleston, S. C., to Corrugated Bar Co.
700 tons, Perry creek sewer, Sioux City, Iowa, to Fort Dodge Rolling Mill Co.
415 tons, State street bridge, Akron, O., to Truscon Steel Co., announced last week as 300 tons awarded to unknown fabricator.
400 tons, Broadmoor hotel, Chicago, to American System of Reinforcing.
300 tons, United States Reclamation service, Denver, Col., to Colorado Fuel & Iron Co.
250 tons, foundations for Hall of Justice, Los Angeles, to unknown fabricator.
200 tons, Rogers Candy Co. building, Seattle, Wash., to local maker.
175 tons, Bekins Fireproof Storage warehouse, Geary and Emerson streets, San Francisco, to W. S. Wetenhall Co.
100 tons, 3-story building for Havens, Oakland, Cal., to Truscon Steel Co.
100 tons, Smith Bros. building, Oakland, Cal., to Badt-Falk Co.
100 tons, Portland-Superior Cement Co. building, Concrete, Wash., to Seattle maker.
100 tons, Washington Iron Works building, Covey West, Wash., to Seattle maker.
100 tons, S. S. Kresge Co. store, Cincinnati, to Bourne-Fuller Co.
100 tons, Madison Square Bank building, Chicago, to Joseph T. Ryerson & Son, Inc.

CONCRETE CONTRACTS PENDING

1200 tons, Ashley river bridge, Charleston, S. C.; general contract to Sanford-Brooks Co.
900 tons, building for News Publishing Co., New York; general contract to Turner Construction Co.
500 tons, Fisher Bros., warehouse, Cleveland, pending.
450 tons, building for the Fish Furniture Co., Chicago; bids being taken.
425 tons, West Twenty-fifth street bridge project in connection with Union Depot development, Cleveland; bids being taken.
400 tons, Knights of Columbus club house, Chicago; bids in.
250 tons, telephone building at Bensonhurst, L. I.; pending.
Tonnage not figured, Brotherhood of Locomotive Engineers bank building, Cleveland; pending.

Pipe Mills

Are Besieged by Jobbers—Cast Pipe Also in Good Demand

PIPE PRICES, PAGE 847 AND 910

Pittsburgh, Sept. 25.—Good business still prevails among the tubular goods manufacturers, jobbers being tireless in their efforts to obtain more and more tonnage, particularly of the butt-weld sizes of standard full weight merchant pipe. Stocks among supply companies all over the country are not well balanced, because the drains upon them have been constant for many months. Many shipments never reach jobbers' stocks but are delivered direct to the job. There has been a falling off in oil country goods buying. Drilling activity is limited because of the present state of the oil market. Regular customers of the larger pipe companies continue to order small lots of line pipe, single carloads, 50 tons or 100 tons at a time, but these usually are placed to complete work in progress.

New buying of seamless boiler tubes is somewhat slim although most makers have good backlogs of business and there is little incentive for cutting prices. The levels of last April still prevail.

Ask New Bids on City Work

New York, Sept. 25.—New bids will be asked by the department of water, gas and electricity on the 5000 tons of cast iron pipe recently up for figures. Low bidder on the purchase and installation of 700 tons of pipe for the department, recently noted, is the Watazo Contracting Co., but the pipe has not as yet been sublet. Little else is noted in the way of municipal inquiry. Prices are unchanged.

Shop Books Well Filled

Chicago, Sept. 25.—Makers of cast iron pipe as a rule have sufficient tonnage up to 16-inch sizes to cover most of their production to the end of the year. Some selling is being done even for 1924 delivery. Further tonnage of larger sizes can be taken by most shops for fairly near delivery. As a result, competition for municipal business is not keen and the number of bidders is much smaller than usual. Bids were opened Sept. 24 on 500 tons at Orrville, O., and Sept. 21 on 300 tons at Berne, Ind. Port Huron, Mich., is in the market for 230 tons.

Contracts Awarded Better

Birmingham, Ala., Sept. 24.—Cast iron pipe lettings are a little better this week, the large companies of this district having received increased tonnages during the past week. Capacity operations are expected for the balance of this year and well into the coming year.

CAST IRON PIPE PLACED

589 tons, work at Pearl Harbor, Hawaii, to American Cast Iron Pipe Co.
323 tons, work in Lincoln Park, Michigan, to American Cast Iron Pipe Co.
287 tons, Los Angeles, to American Cast Iron Pipe Co.

CAST IRON PIPE PENDING

5000 tons, department of water, gas and electricity, New York; to be readvertised.
700 tons, department of water, gas and electricity, New York; Watazo Contracting Co. awarded general contract; pipe not yet sublet.
500 tons, work at Orrville, O.; bids in.
300 tons, Berne, Ind.; bids in.
230 tons, work at Port Huron, Mich.; pending.
5205 tons, 4, 6, 8 and 12-inch class B pipe for Los Angeles; bids in Oct. 2.
515 tons, 6 and 16-inch class B pipe for San Diego, Cal.; bids in.
350 tons, 4, 6, 8 and 12-inch class B pipe for Santa Barbara, Cal.; bids in.

Spiegel Tonnage

Is Sold for Export—Ask Ferromanganese Shipments Be Advanced

FERROALLOY PRICES, PAGE 847

New York, Sept. 25.—The leading transaction in spiegeleisen for some time past involves 1000 tons which just has been sold for export. Domestic trading is somewhat better. Prices on domestic business continue unchanged at $44 furnace for the 16 to 19 per cent grade,

and at $45 to $47.50 furnace, depending on the quantities involved, for the 19 to 21 per cent grade. Some inquiry for spiegeleisen continues pending.

Activity in ferromanganese trading continues small; most of the business involves resales which are bringing the equivalent of $108 to $110, duty paid tidewater. First hand prices are largely nominal; domestic producers continue to quote $112.50 and the imports $117.50.

A little more interest has been noticeable in the special ferroalloys in September than was the case in August, but business still falls short of expectations. The steelmakers are specifying more freely on their standing contracts for deoxidizing alloys and occasional car and less than carlot inquiries are appearing for 50 per cent ferrosilicon. The price of this alloy is unchanged at $82.50 to $87.50, delivered. Ferrochrome prices are unchanged, excepting the importers' prices on the low carbon grades, which are grades used in comparatively small tonnage. An inquiry for 30,000 pounds of contained tungsten in ferrotungsten for forward delivery breaks the monotony of an otherwise dull tungsten market. The price of ferrotungsten is unchanged at 88 to 90 cents a pound contained. The vanadium market is slightly better than in August, with the price unchanged at $3.50 a pound contained base for the open-hearth grade and $4 to $4.50 for special tool steel grades.

Orders Placed Are Few

Pittsburgh, Sept. 25.—While users of ferroalloys continue to put out tentative inquiries from time to time for various sized tonnages, it is only when a favorable opportunity occurs that orders are placed. One such took place this past week when 300 tons of ferromanganese were bought from a speculative interest at a figure understood to be either $108.50 or $109. Producers themselves have not gone below $110 and are quoting $110 to $112.50 base, depending upon the tonnage involved and the delivery wanted. That ferromanganese is being used in increasingly large quantities is evidenced by the fact that a number of consumers are asking that shipping dates be anticipated; they are calling for material delivered immediately that originally was not wanted until late in September or in October. This means one of two things or both; that they underestimated their needs or that their operating rate is higher than was anticipated.

Spiegeleisen users are for the most part covered until the end of the year; one buyer in the valley district however, has just closed on 300 tons for delivery in September and October. It wanted the 19 to 21 per cent grade, shipments to start immediately. Because the seller had nothing but 16 to 19 per cent material for shipment in September, it took one carload at the $44 furnace price but is paying $45 for the remainder in 19 to 21 per cent. Several other single carload orders have been taken by the Dunbar, Pa. interest and a few inquiries of that size are current. No interest at all is noted in ferrosilicon, ferrochrome, ferrovanadium or ferrotungsten; prices are unchanged.

The Stanley Chemical Co. has increased its outstanding capital stock from $500,000 to $700,000.

Sheet Market Is Sluggish

Mills Having Difficulty in Obtaining Tonnage, and Weakness Appears —Independents Profit by Corporation's Heavy Order Books

SHEET PRICES, PAGE 847

Pittsburgh, Sept. 25.—Current needs of sheet users are being met by independent producers, and they are reaping the benefit of the heavy order books ruling with the leading interest. Cases in point come up each week where orders are placed for more prompt deliveries than can be secured from the American Sheet & Tin Plate Co. One came up during the past few days where 30,000 galvanized sheets of an attractive size were ordered from an independent source of supply because the October delivery date named was satisfactory. Independents generally can deliver in a week, 10 days or two weeks. The leading interest has a limited sheet tonnage available for late October delivery, but for the most part already is obligated to the end of November. Customers are furnishing specifications freely and diversified lines of manufacture are active, indicating that consumption generally is proceeding at a high rate. Sheetmakers throughout this district are more encouraged over the outlook than they were a few weeks ago and continue able to sustain operating rates at an average between 80 and 85 per cent of capacity. The American company improved its operating position slightly this past week. Improvement likewise has appeared among agricultural implement manufacturers who are getting ready to manufacture farm machinery this fall and winter for the spring trade. Export business is likely to improve with increased demands from Japan for reconstruction uses. The total tonnage involved is not known, since all inquiries are alike in that they call for 1000 to 10,000 tons of 36 by 72-inch sheets, specifying so many sheets to the bundle. A dozen inquiries from several New York houses might mean a dozen repetitions. An effort is being made to have Japanese buyers take 30-gage sheets or heavier since the lighter gage sheets, so much in popular demand in that country, are unattractive to American mills. Sheet prices are unchanged on the basis of 3.00c, 3.85c, 5.00c and 5.35c on blue annealed, black, galvanized and full-finished automobile sheets, respectively.

Sheet Orders Slow

Boston, Sept. 25.—An inquiry for 1000 tons of sheets which appeared two weeks ago has been indefinitely held up, apparently in the belief that prices will be lower. Actual sales of the past week dropped to a low point and some price shading is reported.

Blue Annealed Firm

Philadelphia, Sept. 25.—Blue annealed sheets continue to be the strongest in the sheet line. Efforts to break the market have proved unavailing. The price continues firm at 3.00c, Pittsburgh, equivalent to 3.32c, delivered, Philadelphia. While new orders are not so good, mills generally have sufficient blue annealed tonnage on books to maintain full production four to eight weeks. Black sheets continue easy. While most large makers quote 3.85c, base Pittsburgh, it is easy to buy black sheets at 3.75c. Galvanized sheets are quiet and generally unchanged.

Market Shows Weakness

Youngstown, O., Sept. 25.—Buying interest in sheets has weakened to the extent that production schedules at certain plants are being reduced. The volume of sales has lowered. The recent appearance of a price of 3.75c on black sheets for spot shipment doubtlessly has intensified the cautious policy of consumers, and while some district mills report the gradual disappearance of this figure a fair volume of business is being lost by producers who are holding firm to 3.85c. Some producers are quoting black sheets for production at 3.75c, base Pittsburgh, in view of the keen competition on every hand. The situation indicates a "showdown" between consumers and producers. On the one hand consumers are placing orders as specifications are needed, and the volume is not very large. Backlogs on the books of certain mills have nearly disappeared, and at others have disappeared, so that it is difficult to make up rolling schedules in advance. This week it became necessary at one plant to suspend operations entirely pending the accumulation of business. Fundamentally the business structure is on a solid basis, but unless something happens during the next few weeks to sustain operation, sheetmakers will be obliged to face a fourth quarter of a marked competitive character. Meanwhile makers are quoting blue annealed at 3.00c, black at 3.85c and galvanized 5.00c, base Pittsburgh. Inquiry for substantial tonnages is lacking. Automobile sheets continue quotable at 5.35c for No. 22, Pittsburgh. While specifications continue in satisfactory volume new business has narrowed down somewhat.

Sheet Demand Holds Up

Chicago, Sept. 25.—Sheet mills at Chicago find a continuing steady demand and with orders covering the greater part of the probable production in fourth quarter, no difficulty is expected in selling the entire output for the year. Some trouble is encountered in obtaining sufficient labor and an important independent mill is able to produce at only 75 per cent of capacity. Chicago mills are unable to take all the business offered and considerable tonnage is being declined because deliveries cannot be made promptly enough to please buyers. Prices are fairly steady at 3.00c, Pittsburgh, for blue annealed, 3.85c, for black, and 5.00c, for galvanized. Some rumors are heard of eastern mills offering black sheets at 3.75c, Pittsburgh, but this is not sufficient to disturb the market.

Structural Sales Larger

Building Activity Unusual at This Season—New York Subway Extension Requires 3000 tons—Prices Generally Are Firm

STRUCTURAL SHAPE PRICES, PAGE 847

Chicago, Sept. 25.—Although structural projects closed the past week in the West are below average in number and tonnage, the general building situation is not less active and building permits in a number of important cities have been more numerous in September than during the corresponding period in August.

In addition to the important projects which have been under consideration recently, another large downtown hotel at Chicago is being planned which will require several thousand tons of steel. Few important tonnages were placed last week, the largest being a bank structure at Davenport, Iowa, requiring 750 tons. Plain material is unchanged at 2.60c, Chicago mill.

Shading Again Is Noted

New York, Sept. 25.—While shading of five and 10 points on shapes is noted, the three leading producers supplying material in this district continue to quote firmly at 2.50c, Pittsburgh. Quotations on fabricated material are holding virtually unchanged, with premiums still being had for material for early shipment. The general run of shop shipments in this district are a little easier, averaging around 10 weeks to three months, but new inquiry is improving, and substantial tonnage is actively pending. A leading inquiry of the past week calls for 3000 tons for an extension to the Fourth avenue subway. Another involves about 2500 tons for a loft building in Thirty-seventh street, near Broadway. Several new lofts have come up for figures. Sizable orders have been scattered.

Pending Business Is Heavier

Detroit, Sept. 25.—Structural steel awards in this vicinity have been small in recent weeks, but a feeling of cheerfulness over pending contracts is apparent. Tonnage let in past week will not exceed 500, but from reports more than 15,000 tons for industrial needs is about to be let. The largest factor originating here is that of the Ford Motor Co. for its assembly plant at Philadelphia which calls for 4000 tons, and at the new plant at Minneapolis, which calls for approximately 10,000 tons.

The Grand Trunk Railway System has drawn plans for a new warehouse at Port Huron and about 500 tons of steel will be used in it. Fisher Body Corp., automobile body maker, plans a large extension of its new plant at Pontiac, Mich., for which 750 tons of steel will be required.

Buying Is Not Far Ahead

Pittsburgh, Sept. 25.—Structural shape buying has not pierced far into the future as usually is the case at this season of the year. Work under way or immediately contemplated is being rushed to completion and the steel is wanted quickly. Often excavations are completed before the metal is ordered and then it is wanted rushed through to destination. Since September specifications promise to outweigh August's, there evidently is an effort under way to have numerous tonnages delivered before the colder weather sets in. Steel producers are more encouraged over the outlook than a few weeks ago and some expect a better fourth quarter than third. Fabricators are able to promise no better than eight weeks' delivery on ordinary 100 or 200-ton jobs which constitute the major portion of activity before them. On some smaller work they are naming four weeks' delivery. Large steel interests are booked for three months ahead but others are not so well fixed. The price on plain shapes remains firm at 2.50c, base Pittsburgh. Awards this week were all of relatively small lots.

September Sales Drop

Boston, Sept. 25.—Mill bookings of new orders for shapes from New England during September indicate that the total tonnage for the month will be on a level with June, and below July and August. Fabricating plants with orders on hand which will tax their capacity for months into the future are not anxious for new business, but the lack of business during the last week or ten days has caused some concern. The leading shops throughout the district report that few new jobs calling for structural steel have come out during the past week. Leading sellers hold firm at 2.50c, Pittsburgh, for shapes. Two small interests, however, are quoting 2.40c, Pittsburgh, in this district.

Inquiries Picking Up

Cleveland, Sept. 25.—Inquiries for structural shapes in this district are picking up and business reflects a more cheerful tone than at this time last month. The Babies and Maternity hospital job here, requiring about 1000 tons, is again active as is the Eighty-second street Jewish temple, needing 200 tons. The 600 tons in the addition to the plant of the American Sintering Co. at Hubbard, O., was awarded to the Variety Iron & Steel Works Co. The $110 price on fabricated material erected is still firm on medium sized jobs, while no evidences are noted of shading of the 2.50c, base Pittsburgh, price for plain shapes.

STRUCTURAL CONTRACTS PLACED

Building awards this week	**14,823 tons**
Building awards last week	**19,568 tons**
Building awards two weeks ago	**11,794 tons**

6000 tons, plates for two 80,000-barrel and 13 100,000-barrel tanks for the Pan American Petroleum Co., San Francisco, to the Chicago Bridge & Iron Works.

3000 tons, girls' vocational high school, Brooklyn, N. Y., to New York Shipbuilding Co.

2000 tons, hospital, West End avenue, New York, to A. E. Norton, Inc.

1200 tons, Knights of Columbus building, Rochester, N. Y., to Genesee Bridge Co., Inc., Rochester.

1200 tons, gas holder, San Diego Gas Co., San Diego, Cal., to Stacey Mfg. Co.

1000 tons, Crystal loft building, New York, to Paterson Bridge Co.

800 tons, Hotel Niagara, Niagara Falls, N. Y., to Buffalo Structural Steel Co.

800 tons, Akron Savings & Loan association building, Akron, O., to Burger Iron Co.

750 tons, Union Davenport Trust & Savings bank, Davenport, Iowa, to Mississippi Valley Structural Steel Co.

600 tons, plant additions for the American Sintering Co. at Hubbard, O., to Variety Iron & Steel Works Co.

538 tons, Alvernia high school, Chicago, to Duffin Iron Works.

400 tons, plant building for the George W. Smith Mfg. Co., Philadelphia, to McClintic-Marshall Co.

400 tons, Henry L. Doherty, New York, to Kansas City Structural Co.

400 tons, Chevrolet Motor Co., Oakland, Cal., to Herrick Iron Works.

300 tons, Crosswicks bridge, Bordentown, N. J., to Phoenix Bridge Co.

300 tons, building for the Diamond Alkali Co., Alkali, O., to McClintic-Marshall Co.

300 tons, apartment at Green and Taylor streets, San Francisco, to Central Iron Works.

250 tons, new benzol plant for Milwaukee Coke & Gas Co., to Wisconsin Bridge & Iron Co.

250 tons, loading building for Nash Motors Co., Milwaukee, to Worden-Allen Co.

250 tons, Ruso store and office building, Fredonia, N. Y., to Kellogg Structural Steel Co.

250 tons, addition for the Pittsburgh Malleable Iron Co., Pittsburgh, to Fort Pitt Bridge Co.

200 tons, miscellaneous plate and structural shape work for the American Construction & Securities Co., South Side, Pittsburgh, to Pittsburgh-Des Moines Steel Co.

200 tons, job in the Pittsburgh territory sublet by the Blaw-Knox Co., to the Fort Pitt Bridge Co.

200 tons, New Jersey state bridge, New Jersey, to Phoenix Bridge Co.

175 tons, Grant street substation for the Duquesne Light Co., Pittsburgh, to Jones & Laughlin Steel Co.

160 tons, state teachers college, Winona, Minn., to St. Paul Structural Steel Co.

150 tons, north channel bridge piers, Jamaica bay, New York, to American Bridge Co.

150 tons, building for the International Paper Co., Buffalo, to Kellogg Structural Steel Co.

STRUCTURAL CONTRACTS PENDING

3000 tons, state highway bridge, Perth Amboy, N. J., on which Frederick Snare, New was low on the general contract; temporarily withdrawn.

3000 tons, Fourth avenue subway extension, New York; bids asked.

2500 tons, loft on West Thirty-seventh street, near Broadway, New York; bids asked.

2300 tons, Sheridan Trust & Savings Bank building, Chicago; bids in.

1000 tons, gas storage holder for Madison Gas & Electric Co., Madison, Wis.; bids in.

800 tons, apartment, Seventy-third street and Amsterdam avenue, New York; pending.

750 tons, plant for Fisher Body Corp., at Pontiac, Mich.; pending.

700 tons, apartment, 1133-35 Park avenue, New York; bids asked.

500 tons, warehouse at Port Huron, Mich., for Grand Trunk railway; pending.

350 tons, bridges for the state of New Jersey; bids asked.

300 tons, memorial to Dr. John B. Murphy, Chicago; bids in.

200 tons, bridge for the Central railroad of New Jersey; bids asked.

200 tons, bridges for the Virginian railway; pending.

200 tons, Main street bridge, Peshtigo, Wis.; general contract awarded to Stein Construction Co., Milwaukee, which will sublet fabrication and erection.

150 tons, bridge for Philadelphia & Reading; bids asked.

105 tons, subway at Sacramento, Cal.; Davidson & Nicolson, general contractors. Steel not yet placed.

Several hundred tons, Peckham apartment, Lexington avenue and Thirty-sixth street, New York; specifications out about Oct. 15.

Steel Corporation Orders Show Good Gain

New York, Sept. 25.—Bookings of the United States Steel Corp. for the first 21 days of September averaged 31,391 tons daily against an average of 15,268 tons daily for the first 21 days of August and an average of 28,647 tons for the entire month of August. Some large orders were

added to the books in the last week of August.

Export business has been increasing. In the week ended Sept. 21 the United States Steel Products Co. booked 21,532 net tons of material. The principal product included was tubular goods totaling 13,500 tons made up of one order of 12,000 tons and miscellaneous lots.

An increase is shown in steel ingot production by the Steel corporation plants to 90.3 per cent of capacity this week, compared with 87.3 per cent a week ago. Blast furnaces continue to operate at 85 per cent, the same as last week.

Reports from all subsidiary companies state that business has been increasing steadily. Some companies, notably the Tennessee Coal, Iron & Railroad Co. are operating at capacity. A much better demand for structural material as well as for bars and plates is shown.

Announce Machine Tool Builders' Program

Announcement of the program of the twenty-second annual convention of the National Machine Tool Builders' association to be held at Lenox, Mass., Oct. 2, 3 4, has been made. Over half the membership of the organization has signified already their intention of being represented.

An unusual program has been arranged by the sports committee which has received a large list of entrants in a golf tournament and a tennis match. These will take place the morning of the second day of the convention, Wednesday, Oct. 3.

Tuesday, Oct. 2

9:00 a. m.—Registration.
2:30 p. m.—President's address and reports of officers.
Election of board of directors.
Report of ethics committee.
8:00 p. m.—Report of conference committee, Mr. Carrel, chairman.

Wednesday, Oct. 3

9:30 a m.—Golf tournament.
Tennis match.
2:30 p. m.—Round table topics.
8:00 p. m.—Committee meetings: Lathes, horizontal boring machines, milling machines, shapers, upright drilling machines, and vertical boring mills.

Thursday, Oct. 4

9:30 a. m.—Committee meetings: Grinding machines, gear cutting machines, hand milling machines, planers, radial drilling machines, turret lathes and screw machines and sensitive drills.
12:00 noon—Adjournment.

To Double Plant

The American Sintering Co., Chicago, has let the contract for extensions of its plant at Hubbard, O., to the Variety Iron & Steel Works Co., Cleveland. About 600 tons of steel will be required. The additions to the Hubbard plant will double its capacity.

Ore Man Ill

Frank Billings, president of Tod-Stambaugh Co., Cleveland, is seriously ill in London where he was stricken on a European tour. Mr. Billings is prominent in the Lake Superior iron ore industry, having been identified with that business for many years.

1924 Rail Inquiries Out

Pennsylvania and Philadelphia & Reading Railroads Expected to Close This Week on 100,000 Tons for Next Year Requirements

RAILROAD TRACK MATERIAL PRICES, PAGE 847

New York, Sept. 25.—The New York Central railroad will open bids Oct. 3 on fourth quarter requirements, including 5000 tons of plates, shapes and bars, 500 tons of nails and staples, 750 tons of blue annealed, black and galvanized sheets, 250 tons of billets, 2000 tires, 20,000 seamless boiler tubes, 2000 axles, and an indefinite quantity of car and locomotive wheels.

Both the Philadelphia & Reading railroad and the Pennsylvania railroad are expected to close this week on their 1924 rail requirements which are estimated at a total of 100,000 tons.

Car business continues restricted, with two lists, one for 65 coaches and another 50 suburban coaches, among the scattered inquiries. Car orders are virtually negligible. An outstanding item in the locomotive market is an order for 35 tenders for the New York Central railroad. Fifteen of the tenders will be built by the Lima Locomotive Works, and 20 by the American Locomotive Co.

Rail Sales Are Lagging

Chicago, Sept. 25.—Although practically all western railroads are in the market for their 1924 tonnages of standard steel rails and fastenings, they are slow to close and no important sales were made the past week. Negotiations for important tonnages are under way and the tonnage to be bought before the end of the year is large. Demand for track fastenings is also dull and the inquiry which was coming out the past few weeks seems to have disappeared.

No inquiry for light rails is being received as coal mining is not active. Railroads are anxious to obtain shipment on their rail contracts and are pushing for delivery of both rails and track fastenings to obtain the material for laying this season. The only sale of car material was made to the Elgin, Joliet & Eastern railroad which bought 500 steel underframes. Inquiry for about 400 cars in small lots is under consideration.

The Great Northern railroad placed 2000 tons of angle bars and 3000 tons of tie plates with the Bethlehem Steel Co., 2000 tons of angles and miscellaneous material with the Illinois Steel Co., and 1000 tons of material with the Inland Steel Co.

Carload Orders Rule

Pittsburgh, Sept. 25.—Small orders, rarely larger than a carload at a time, rule in the light rail industry. While the established market price is unchanged at 2.25c, base Pittsburgh, and large producers claim to be getting their full share of the going business at that price, concessions appear occasionally. As a rule producers of billet-rolled rails see that there is little if anything to be gained by cutting the market, which of itself is low, they claim, in view of advancing costs of production. Re-rollers are offering prices from $5 to $7 per ton under the 2.25c figure.

The market is fairly active on track accessories and spike and tie plate makers are operating full or as full as they can with intermittent labor shortages. Some local producers of spikes are two months behind on their orders. The Philadelphia & Reading railroad closed recently on 500,000 tie plates and the Pennsylvania bought 200,000. The Southern Pacific, the Florida East Coast railroad and a few other lines are inquiring for 1924 track material. The Atlantic Coast line wants 2500 kegs of spikes for immediate delivery. While some concessions on spikes have appeared in the East, standard spikes are unchanged here at 3.15c, small spikes at 3.50c and tie plates at a minimum of 2.60c, while track bolts are 4.00c, base Pittsburgh.

New England Railroads Cautious

Boston, Sept. 25.—Inquiry for 24,000 tons of rails has appeared during the past week. This is from roads which bought 30,000 tons a year ago.

Sales of fastenings and miscellaneous material to railroads during the past week totaled about 2000 tons.

CAR ORDERS PLACED

Cuba Sugar Cane Corp., 35 cane cars to American Car & Foundry Co. and 25 to Koppel Industrial Car & Equipment Co.
Elgin, Joliet & Eastern railroad, 500 steel underframes, to James G. Heggie, Joliet, Ill.
American Window Glass Co., repairs to 30 hopper cars, to Pressed Steel Car Co.

CAR ORDERS PENDING

Chesapeake & Ohio railroad, inquiry for six express cars raised to ten; pending.
South Australian government, 1200 steel cars including 600 gondolas and 500 box cars; pending.
Philadelphia & Reading railroad, 40 suburban cars and 10 combination baggage cars; pending.
Nickel Plate railroad, 200 underframes; bids asked.
Long Island railroad, 60 coaches; bids asked.
For export to China, 50 flat cars; bids asked.
Central of New Jersey, 65 coaches; bids asked.
Denver & Rio Grande Western, 50 narrow gage refrigerator cars; bids asked.
Central Railroad of Brazil, 100 gondolas; bids asked.

Starts Southern Mill

Birmingham, Ala., Sept. 25.—The Connors Steel Co., Birmingham, has resumed operations at its No. 1 Woodlawn plant, Birmingham, manufacturing hoops and bands. The equipment from the old Helena, Ala., works has been transferred to the Woodlawn plant.

Cuts Down Force

New York, Sept. 25.—A report that 200 employes of the United States Steel Products Co., the export subsidiary of the Steel corporation, had been laid off is confirmed by Chairman E. H. Gary. It is explained, however, this is not due to the falling off of export business which is described as fair but that it is being done as an "efficiency move."

The Nonferrous Metals

News from Europe Encourages Copper and Tin but Buying Not Heavy—Zinc Dull—Lead Eases After Strength

	Copper—Electro delivered	Copper—Lake delivered	Spot Straits New York	Lead† New York basis	Zinc St. Louis basis	Spot† aluminum	Spot antimony	Nickel spot
Sept. 19.....	13.37½	13.75	41.62½	7.10	6.40	25.00	7.37½	29.00
Sept. 20.....	13.37½	13.75	41.25	7.12½	6.37½	25.00	7.37½	29.00
Sept. 21.....	13.37½	13.75	41.12½	7.12½	6.40	25.00	7.50	29.00
Sept. 24.....	13.50	13.75	42.00	7.10	6.40	25.00	7.50	29.00
Sept. 25.....	13.50	13.87½	42.37½	7.07½	6.40	25.00	7.50	29.00

†Outside market quotation.

NEW YORK, Sept. 25.—More encouraging reports from abroad as to the outlook for a settlement of the Ruhr deadlock and a resumption of industrial activity in the occupied regions have inspired a better feeling in the metal markets here and abroad. Copper ran through a decline early last week which brought it to the lowest level in 15 months, at 13.25c, then recovered to 13.50c, delivered, at which price all selling agencies were holding early this week.

The lead market has been strong on active buying by battery and cable companies. New York Edison Co. bought 2000 tons of lead and a quantity of copper. Boston Edison bought 1000 tons of lead. A middle western utility also bought 2000 tons of lead and 2000 tons of zinc early this month. This was all cable business. Zinc has been quiet, buying by American galvanizers lacking snap, though foreign buyers inquired actively for early shipment. Tin has been dull, though fluctuating rather widely on changing foreign news.

The recovery of ¼ cent in the price of copper, to 13.50c, delivered, served to attract a considerable carlot inquiry for copper from all over the country to sellers here, also a few good-sized inquiries. However, the market has lacked a really strong undertone, due to the fact that the present price is maintained principally in hopes of improved foreign buying, inasmuch as there continues an overproduction of the metal. Casting copper declined to 13.25c, refinery and lake to 13.75c. All brass and copper product prices were marked down recently ⅜ to 1 cent a pound.

Prime western zinc prices have been maintained at 6.40c, East St. Louis, with inquiry slack. England has been trying to buy metal afloat and for September shipment from Gulf ports. With ore prices around $40 there is little or no profit for most smelters in 6.40c zinc and this fact has tended to keep a dull market from going lower. Another factor is the expectation that Europe will have to buy considerable zinc. Belgium is reported to have taken an order for 20,000 tons of rolled zinc for the Argentine government for locust prevention. The importance of this tonnage can be appreciated when it is realized the entire American output of rolled zinc in 1922 was only about 50,000 tons.

Lead has been in good demand in the East with a price of 7.10c to 7.12½c paid, New York basis. In the Middle West demand has been less active and metal sagged Monday to 6.70c St. Louis, cutting New York a little. The differential between New York and St. Louis recently widened to a margin greater than the freight rate of 35 points, so that Missouri lead has been selling freely in the East.

Tin prices advanced £5 in London Sept. 24 and a little further today, with the result that tin in New Yok again sold over 42c, both for spot and future positions. Exchange rates also stiffened this week to over $4.56, an advance of about 4 points in six business days. London has been encouraged by the political news.

Antimony sold a week ago at 7.25c, duty paid, for a distress lot, then stiffened to 7.50c. Futures are quoted 5.37½c, c.i.f. in bond.

Ninety-eight to 99 per cent virgin ingot aluminum has been selling in the outside market at 25c a pound. Some consumers have been sounding the market for their 1923 requirements.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Copper, hot rolled, 4 oz., min.	22.25
High brass	18.50
Zinc, ga. 9 to 18 (plates ½c less)	9.25
Lead, full sheets (cut ¼c more)	10.75
Aluminum, base 18 ga. and up...	35.40
SEAMLESS TUBES	
High brass	24.00
Copper	25.50
RODS	
High brass, round, ⅜ to 2½-inch	16.75
Naval brass rod	19.50
WIRE	
Copper	16.25 to 17.00
High brass	19.00

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
Cleveland	9.00 to 9.50
New York	9.00 to 9.25
Chicago	9.00 to 9.25
HEAVY YELLOW BRASS	
New York	6.25 to 6.50
Chicago	6.75 to 7.25
Cleveland	6.00 to 6.50
ZINC	
New York	4.25
Cleveland	3.00 to 3.50
HEAVY COPPER AND WIRE	
Cleveland	11.00 to 11.50
New York	11.25 to 11.75
Chicago	11.25 to 12.00
RED BRASS TURNINGS	
New York	8.00 to 8.25
Cleveland	8.00 to 8.50
Chicago	8.50
YELLOW BRASS TUBING	
Cleveland	6.00 to 6.50
NO. 1 BRASS ROD TURNINGS	
Cleveland	6.00 to 6.50
New York	6.75 to 7.00
Chicago	7.25
ALUMINUM BORINGS	
Cleveland	10.00

Aetna Foundry & Machine Takes Sharon Plant

Possession of the property of the Shenango Machine Co., Sharon, Pa., recently has been passed to the Aetna Foundry & Machine Co., manufacturers of miscellaneous sheet and tin mill, galvanizing, long terne and strip mill equipment and general jobbers of special machine castings and patterns with a foundry and machine shops at Warren, O. The site of the Shenango Machine Co. comprises approximately 4 acres of land served by the Erie railroad. The plant includes a pattern shop, power plant, three pattern storage buildings, and a 60 x 101-foot modern foundry building equipped with a traveling crane. By the acquisition of this plant the Aetna company will engage in the production of castings weighing up to 20 tons and will specialize on blast furnace and steelworks equipment, including blast furnace hoppers, bells and columns, thimbles for cinder cars, etc. The two plants have a capacity of approximately 1000 tons of gray iron and semisteel castings per month. Early this year the company enlarged the machine shop at its Warren, O., plant, thereby increasing the output about 40 per cent. Officers of the Aetna Foundry & Machine Co. include M. I. Arms. II, president and treasurer; J. R. Paisley, secretary; Alex Crowe, vice president and general superintendent; R. J. Wean, sales manager.

Prepare for Late Shipping of Iron Ore

Duluth, Sept. 25.—Mine operators are hopeful that the season's iron ore shipments from the Lake Superior district will aggregate 60,000,000 tons. Operations by all interests are maintained near capacity. The labor situation is improving. Large tonnages are ready for late shipment to docks.

The Minnesota Steel Co.'s furnaces and wire mill are operating at capacity.

Will Sell Plant

The plant of the Standard Welding Co., 1200 West Seventy-third street, Cleveland, the last remaining property of the Standard Parts Co., will soon be sold. Liquidation of the properties of the Standard Parts Co. was started in March, since which time the following subsidiary interests have been sold: Eaton Axle Co., Cleveland, Perfection Springs Co., Cleveland; Pontiac Spring Co., Pontiac, Mich.; Cleveland, New York and Boston service stations; the Cincinnati Axle Co., Cincinnati; and the Canton Spring & Forge Co., Canton, O. The plant of the Standard Welding Co. at West Seventieth street, Cleveland, also was sold.

Hobson & Botts Co., Danbury, Conn., manufacturers of knives, forks and spoons, have bought part of the buildings and land formerly owned by the Von Gal Hat Co.

Show Applications of Electricity

More Than 100 Companies Display Equipment Involved in Use of Electric Power and Heat in Iron and Steel and Metal Working Industries—Foundry Exhibition Attracts Attention—Officers Named

ELECTRICITY, the century's valued agent in the transfer and application of power, was depicted in its leading role in the iron and steel industries at the exposition which opened in the Broadway auditorium, Buffalo, Sept. 24. Conducted under direction of the Association of Iron and Steel Electrical Engineers which held its technical sessions starting Monday afternoon in a room adjoining the exhibition hall, the display tended to visualize the important features, equipment and products of service to blast furnace plants, mills, large machine shops, and foundries. In a special effort to interest the latter, an operating steel foundry complete in the details necessary for operation was established.

Equipment shown varied from the power generating units such as hydro-electric units and steam turbine driven generators to small solderless line connections, fuses and lamp maintenance equipment. Over 100 manufacturers were represented and demonstrated their products either through full size operating devices, models or photographs. An effort was made on the part of the large producers of electrical equipment to acquaint their interested followers, the electrical engineers of the iron and steel industry, with the less familiar and in many cases small but important units of equipment. This was particularly noted in the displays offered by the General Electric Co., Schenectady, N. Y., and the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

The former company showed and demonstrated high power lamps for industrial lighting, lamps designed to resist the stress of jars and rough handling, and compared the lighting efficiency of certain units. Reversing magnetic control systems, heavy-duty, direct-current mill-drive motors, inside and outdoor types of lightning arresters and protective panels for cranes occasioned much interest from operating executives.

The Westinghouse company displayed full size units of steam turbine generating equipment, mill motors, steel mill operating control panels squirrel-cage type induction motors and the various types of lamps recommended for industrial service. Auxiliary equipment, such as indicating and control pyrometers and rheostat controls for ovens and heat treating furnaces also were shown.

The Electric Controller & Mfg. Co., Cleveland, showed starting switches, controllers of various types and a new manual automatic compensator operated in connection with a motor. An exhibit of this company which attracted considerable attention was a motor operating in a glass enclosed box containing a quantity of cement which was agitated and stirred by a fan attached to the shaft of the motor.

Cutler-Hammer Mfg. Co., Milwaukee, through a system of charts containing parts or units of the devices described, demonstrated its various products such as equipment for metering air and gases, industrial heating and soldering devices, clutches for different drives and electric magnets. A disassembled unit of the type of lifting magnet made by this

Elect New Officers

BUFFALO, Sept. 25.—R. B. Gerhardt, Bethlehem Steel Co., retiring president of the Association of Iron and Steel Electrical Engineers, and John F. Kelly, secretary of the association, were the principal speakers at the opening session of the seventeenth annual convention in session this week at the Statler hotel.

Officers of the association elected for the ensuing year are as follows:

President
R. L. SHOEMAKER,
American Rolling Mill Co., Middletown, O.

Vice Presidents
A. C. CUMMINS
Carnegie Steel Co., Duquesne, Pa.
GEORGE H. SCHAEFFER,
Carpenter Steel Co., Reading, Pa.

Treasurer
J. CARRINGTON,
Wheeling Steel Corp, Steubenville, O.

Secretary
J. F. KELLY,
Pittsburgh.

Directors
W. Kennedy, Worth Bros. Steel Co., Claymont, Del.
A. P. Jones, Champion Machine & Forging Co., Cleveland.
A. F. Elliott, Sloss-Sheffield Steel Co., Birmingham, Ala.
F. W. Cramer, Bethlehem Steel Corp., Johnstown, Pa.
H. Davis, Interstate Iron & Steel Co., Chicago.

ELECTRICAL OPERATING EQUIPMENT AND SUPPLIES ARE FEATURED AT THE BUFFALO EXHIBITION

company was exhibited to show the trouble-proof and protective features.

Material handling and transfer received a larger share of attention than was noted in previous exhibitions of the iron and steel group. Cranes and hoists with their control elements were largely in evidence and the growing importance of storage battery trucks in this class of service was evidenced.

The Shephard Electric Crane & Hoist Co., Montour Falls, N. Y., displayed boiler steel, drop forgings and bolts; in its exhibit space, a cage controlled monorail type hoist and various other types of units, in addition to its operating exhibit.

The Alliance Machine Co., Alliance, O. had small operating models constructed of aluminum which served to show the working of ladle and soaking pit cranes, stripping cranes, bin storage systems and a practical car dumper.

Different types of storage battery trucks, comprising elevating platform units, fork-type, furnace charging units, tractors and crane-type trucks with others designed for special industrial service were shown and in many cases were in operation on the floor of the exhibition hall. Those who were represented in this class of equipment included: Automatic Transportation Co., Buffalo; Baker R. & L. Co. & Cleveland; the Elwell-Parker Electric Co., Cleveland; Lakewood Engineering Co., Cleveland; and the Mercury Mfg. Co., Chicago.

The contribution of the foundry industry to the operating necessities of the iron and steel industry was shown by the number of castings manufacturers present at the show. The Stroh Steel Hardening Process Co., Pittsburgh, showed a number of large gears, wabblers, roll pinions and special rolls made by a method which gives a glass-hard wearing surface to a soft-steel core casting. W. P. Taylor & Co., Buffalo; Farrell Machine & Foundry Co., Ansonia, Conn.; Tool Steel Gear & Pinion Co., Cincinnati; and R. D. Nuttall Co., Pittsburgh, exhibited gears and other castings while the Chapman Valve & Mfg. Co., Indian Orchard, Mass. displayed valves and test pieces from various metals employed in their manufacture.

Small pneumatic tools such as drills, chippers, grinders and rammers were shown by the Cleveland Pneumatic Tool Co., Cleveland, and the Chicago Pneumatic Tool Co., New York.

A new type, electric-driven, portable hammer was shown by the National Electric Mfg. Co., Inc., Pittsburgh. This is designed for use in drilling or chipping and operates on current from the ordinary electric light socket connection.

Refractories for fire-box and furnace linings were shown by a number of representative manufacturers, including Harbison-Walker Refractories Co., Pittsburgh; American Arch Co., Inc., New York, and Liptak Fire Brick Arch Co.

The Hyatt Roller Bearing Co., New York, showed a number of types of its product and demonstrated their application to the heavy transportation service demanded in the steel industry. Other exhibitors of bearings included the Norma Co. of America, New York, and the S. K. F. Industries, Inc., Hartford, Conn. Bearing metals and their uses were shown by the Lumen Bearing Co., and the Sumet Corp., both of Buffalo.

Arrange to Operate Foundry

Special attention was directed to the service of electrically driven equipment in the foundry. A section of the exposition hall was devoted to a small operating steel foundry working under direction of E. P. Langworthy, manager, and J. H. Scully in charge of molding. These operating executives, three molders and four laborers composing the force in charge of molding, pouring and shaking-out steel tractor shoes, are from the Buffalo steel foundry of the American Radiator Co.

Cores were supplied from the plant mentioned, but the molds were actually made on two jolt squeezer molding machines, provided by the Osborn Mfg. Co., Cleveland, in flasks manufactured by the Truscon Steel Co., Youngstown, O. Compressed air for the machine was supplied by a compressor made by the Worthington Pump & Machinery Corp. The sand employed was a standard steel grade produced by the Venango Sand Co., Franklin, Pa., mixed in a 6-foot pan, Mulled-type mixer, from the National Engineering Co., Chicago.

These molds were placed on steel channel frames, six molds to a frame and assembled to be poured with metal melted in a 1000-pound, direct arc type, furnace installed by the Pittsburgh Electric Furnace Co., Pittsburgh. A 5-ton crane erected by the Shephard Electric Crane & Hoist Co., Montour Falls, N. Y., commanded the pouring floor and operated over the pouring pit where three ladles, supplied by the Whiting Corp., Harvey, Ill., were provided to take away the metal. These ladles were preheated by a ladle heater made by the Mahr Mfg. Co., Minneapolis.

An annealing furnace made by the George J. Hagan Co., Pittsburgh was installed to anneal the castings, two heats per day at 1600 degrees Fahr., forming the stint alloted to this furnace. The castings were placed in the furnace in a special nickel-chromium alloy box made by the Ohio Steel Foundry Co., Lima, O., and were charged by a special fork-type, elevating truck made by the Automatic Transportation Co., Buffalo.

A complete welding room, with a portable arc welder made by the Westinghouse Electric & Mfg. Co., East Pittsburgh, was available for such castings as required this treatment. The Bridgeport Safety Emery Wheel Co., Bridgeport, Conn., provided snagging wheels with operators for grinding the castings, two direct-connected double wheel units comprising the installation.

Immediately adjoining the grinding section was a complete sand-blast installation erected by the Pangborn Corp., Hagerstown, Md. This included a sand-blast barrel, a table-type sand blast, drying and abrasive reclaiming equipment and a dust arrester.

Auxiliary equipment used in the foundry section included electrodes for the furnace, by the Atchison Graphite Co., Niagara Falls, N. Y.; weighing scales for the charges by the Buffalo Scale Co., Buffalo; transformers by the Pittsburgh Transformer Co., Pittsburgh; and chipping hammers and grinders by the Cleveland Pneumatic Tool Co., Cleveland.

Circuit breakers, insulators, line equipment, conduit fittings, switches, carbons, brushes, and lamp installation and maintenance devices were shown by various companies, including: Appleton Electric Co., Chicago; Corliss Carbon Co., Bradford, Pa., Delta Star Electric Co., Chicago, Mutual Electric & Machine Co., Detroit, and Square D Co., Detroit.

The Hayward Co., New York, exhibited an electrically operated clam shell bucket. The MacLeod Co., Cincinnati, showed photographs of sand-blast installations and the Spencer Turbine Co., Hartford, Conn., demonstrated low pressure turbo-compressors.

Buys Tin Plate Plant

The physical assets and plant of the Hudson Sheet & Tin Plate Co., Marietta, O., have been acquired by the Robertson Iron & Steel Co., Cincinnati, the company being the successful bidder at the recent auction sale. The plant was built with Danish capital during the war. W. F. Robertson, president of the company which now owns the plant, plans to construct a branch plant of the American Can Co., at Marietta to be operated in conjunction with the tin plate plant.

Huntile Gordon, a principal stockholder and president at the time of its organization, has petitioned for the appointment of a receiver for the Ohio Pumping Machine Co., Akron, O.

Japan Adds to British Orders

Placing of More Substantial Tonnage for Reconstruction Stimulates English Buying and Increases Steel Mill Activity—Colonies Close for 6000 Tons of Rails—Flurry in French Market Due to Reparation Rumors

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Sept. 25.—Japan has placed substantial orders for thin, galvanized and black sheets, wire nails and wire, and this has stimulated a moderate amount of English buying, as a result of which the steel mills are more active. The British sheet and tin plate mills now are booked full until the end of the year. The foreign price of semifinished material is the same as that of the British. Colonial orders for 6000 tons of rails have been placed with the United Steel Co., Workington. Three more blast furnaces have resumed operation, and more contracting for pig iron is noted, though the price is weak because of heavy stocks on hand.

Price changes in the British market this week bring the following products to the levels as quoted: Black sheets for home use, £12 10s ($57.02); black sheets for export, £11 15s ($53.61); Middlesbrough No. 3 foundry iron, £4 16s ($21.92).

The French correspondent of IRON TRADE REVIEW reports from Paris that rumors of the settlement of the reparation question have caused a flurry in French business circles, indicating some readjustments. The coke shortage is acute, threatening a steel famine. An advance of 30 francs in the price of coke is expected Oct. 1, and steel prices are quoted subject to changes in fuel values. English hematite is competitive in the French market. Makers of semifinished material have orders sufficient for two months' operation. Finishing mills are declining business. The railroads are placing heavy orders for steel castings.

The Belgian market gives more indication of stability. The mills in Charleroi are booked until November. Foreign orders for bridge building material this week total several thousand tons. There has been a reduction in deliveries of coke from the Ruhr, and this attributed to the German desire to arouse ill feeling.

German prices, now quoted on a pound sterling basis, this week are as follows: Foundry iron, £5 16s ($26.45); stahleisen, £6 5s ($28.50); billets, £9 4s 8d ($42.10); sheet bars, £9 11s 8d ($43.70); wire rods, £11 12s ($52.90); standard rails, £12 10s ($57); merchant bars, £10 19s ($49.93); structural shapes, £10 18s 3d ($49.76); ship plates, £12 6s 10d ($56.28); medium plates, £13 15s 10d ($62.89); sheets, £16 18s ($74.78); wire, £16 10s 3d ($75.30) and bands, £13 12s 10d ($62.23).

Sterling exchange is figured on a basis of $4.56.

Depression Persists in British Steel Trade

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,

BIRMINGHAM, Eng., Sept. 14.—Iron and steel men are hoping that the old adage as to the darkest hour preceding the dawn may prove to be justified. Sheffield reports that the month of August was the worst in years. The statistics published by the National Federation of Iron and Steel Manufacturers show that in regard to the output of pig iron and steel August was the most unsatisfactory period for several months. Production of pig iron was 599,800 tons, against 655,100 tons in July, and the lowest since February. During the month ten furnaces were put out of action. The production of steel ingots and castings was 582,700 tons, a drop from 624,300 tons in July, comparing with 821,000 tons in May. August was a holiday month, and stoppages possibly were extended beyond the periods warranted by order books. In the pig iron department the unusual course was taken of damping down furnaces. Some of these have resumed operations.

Sterling—$4.54

Three furnaces have been put out of action recently, two in Scotland and one in England. Trade is most discouraging in Barrow, where there were signs of revival. Stocks there have once more become heavy, with little home or foreign demand. The only encouraging department is ferromanganese, for which there still are some orders on the books.

Cleveland No. 3 is down to £4 17s 6d ($22.13) with light foreign requirements. Of the 114 furnaces on the northeast coast, only 39 are at work of which 10 are making Cleveland pig iron, 11 are producing hematite and 18 other descriptions. There is some signs of a revival in hematite, one order of 1000 tons having been booked for France. Prices are hardening a little, business having been done at £5 ($22.70). Midland prices continue weak, the present quotations of £4 12s 6d ($20.99) for Derbyshire foundry iron and £4 10s ($20.43) for Northampton iron being slightly above the actual business value. Some Derbyshire houses are seriously considering the stoppage of more furnaces, since it is said the present selling price does not cover the cost of production.

The question of coke continues the most serious element. In Cleveland coke still costs from £2 ($9.08) to £2 1s 6d ($9.42), delivered, with the selling price of No. 3 iron at £4 17s 6d ($22.13). A year ago with the same brand of pig iron at £4 10s ($20.43) furnace coke was £1 6s 6d ($6.01). The position is a shade better in the Midlands, with furnace coke quoted at £1 6s ($5.92), ovens. Supplies, however, are limited to a few cokemaking firms, who partly from patriotic motives resist the temptation to dispose of large quantities of their coke to foreign buyers at £1 17s 6d ($8.51) to £2 ($9.08) per ton.

There are signs of a little more foreign buying of pig iron, inquiries coming to Middlesbrough and the Midlands, although the latter district seldom gets this business in competition with

Current Iron and Steel Prices of Europe

Last Reported Prices Converted into Dollars at Rates of Exchange, September 24

British Market

Corrected to Date by Cable
Home Market Prices. Gross Tons at Works or Furnace

	$	£ s d
SEMIFINISHED STEEL		
Billets, soft steel	32.49	7 2 6
Sheet bars	32.49	7 2 6
Wire rods	49.59	10 17 6
FINISHED STEEL		
Steel bars, England, ⅝ to 3-inch	42.18	9 5 0
Steel bars, England, ⅝ to 3-inch, for export	38.76	8 10 0
Plates, ship, bridge and tank, England	41.04	9 0 0
Plates, ship, bridge and tank, England, for export	39.33	8 12 6
Plates, ship, bridge and tank, Scotland	41.04	9 0 0
Plates, ship, bridge and tank, Scotland, for export	39.90	8 15 0
Beams, England	41.04	9 0 0
Beams, England, for export	38.76	8 10 0
Beams, Scotland	41.04	9 0 0
Beams, Scotland, for export	38.75	8 10 0
Sheets, black, 24 gage	57.00	12 10 0
Sheets, black, 24 gage, for export	53.58	11 15 0
Sheets, galvanized, 24 gage	86.64	19 0 0
Rails, 60 pounds and over	38.76	8 10 0
Rails, 60 pounds and over, for export	36.48	8 0 0
Tin plate, base box, 108 pounds	5.24	1 3 0
Steel hoops	52.44	11 10 0
Steel hoops, for export	50.16	11 0 0
PIG IRON		
Hematite, East Coast, Mixed Numbers	22.46	4 18 6
Hematite, West Coast, Mixed Numbers	22.12	4 17 0
Basic, Middlesbrough	21.09	4 12 6
No. 3 Foundry, Middlesbrough	21.89	4 16 0
No. 3 Foundry, Derby, Leicester, Nottingham	20.75	4 11 0
No. 3 Foundry, Northamptonshire	20.52	4 10 0
No. 3 Foundry, Staffordshire	21.09	4 12 6
No. 3 Foundry, Scotch	22.80	5 0 0
Ferromanganese, 76 to 80 per cent	82.08	18 0 0
Ferromanganese, 76 to 80 per cent, for export	84.36	18 10 0
COKE		
Yorkshire furnace	5.93	1 6 0
Yorkshire furnace, for export	11.40	2 10 0
Yorkshire foundry	7.98	1 15 0
Yorkshire foundry, for export	11.40	2 10 0

Where no separate export prices are given, same quotations apply to domestic and foreign business.

German Market

Prices Last Reported

	$	Pounds per metric ton
PIG IRON		
Hematite, Oberhausen	26.45*	5 16 0†
Foundry, No. 3, Oberhausen	26.45	5 16 0†
Bessemer Stahleisen, Siegen	28.50	6 5 0†
Foundry, No. 1, Oberhausen	26.45	5 16 0†
Luxemburg Foundry	26.45	5 16 0†
COKE		
Ruhr furnace	12.54	2 15 0
Ruhr foundry	12.54	2 15 0
SEMIFINISHED STEEL		
Billets	42.10	9 4 8
Sheet bars	43.70	9 11 8
Wire rods	52.90	11 12 0
FINISHED STEEL		
Standard rails	57.00	12 10 0
Merchant bars	49.93	10 19 0
Structural shapes	49.76	10 18 3
Ship plates	56.28	12 6 10
Medium plates, 3 to 5 millimeters	62.89	13 15 10
Sheets, below 3 millimeters	74.78	16 8 0
Tin plate		Nominal
Plain wire	75.30	16 10 3
Bands and strips	62.23	13 12 11

All prices are f.o.b. furnace or mill.
*German prices now quoted in pounds, sterling.
†With German coke; where foreign coke is used quotations are higher.

On account of the occupation of the Ruhr these prices are largely nominal and cover domestic business only. Export prices are usually quoted, where deliveries can be made, in foreign currency according to the country of destination.

French Market

Prices Last Reported

	$	Francs per metric ton (2205 lbs.)
PIG IRON		
Hematite, Lorraine	29.71	480
Basic bessemer, Lorraine	26.00	420
Foundry, Longwy, No. 3, sand-cast	25.38	410
Foundry, Longwy, No. 3, chill-cast	26.00	420
Ferromanganese, 76 to 80 per cent	92.85	1,500
COKE		
French furnace	8.36	135
German furnace, f.o.b. frontier*	12.38	200
German furnace, f.o.b. frontier**	15.48	250
French foundry	8.98	145
SEMIFINISHED STEEL		
Blooms	33.12	535
Billets	36.62	590
Sheet bars	37.14	600
FINISHED STEEL		
Standard rails	43.33	700
Merchant bars	39.62	640
Angles	38.38	620
Normal beams and profiles	38.38	620
Plates, ship and tank, 10 millimeters and thicker	41.47	670
Plates, bridge and tank, 5 to 10 millimeters	42.09	680
Sheets, black, 3 millimeters	44.57	720
Sheets, blue annealed, 2 millimeters	50.14	810
Shafting, cold-drawn, 40 to 60 millimeters	80.47	1,300
Bars, 2 per cent nickel steel	123.80	2,000

All prices are f.o.b. furnace or works.
*Up to 50 per cent of normal requirements.
**Over 50 per cent of normal requirements.

Belgian Market

Prices Last Reported

	$	Francs per metric ton (2205 lbs.)
PIG IRON		
Basic bessemer, Belgian	24.71	455
Basic open-hearth, Belgian	25.52	470
Gray forge, Belgian	14.66	270
Foundry, No. 3, Belgian	25.52	470
Foundry, No. 3, Luxemburg	24.44	450
Foundry, No. 3, Lorraine	24.71	455
SEMIFINISHED STEEL		
Blooms	32.58	600
Billets	33.94	625
Sheet bars	35.30	650
Wire rods	50.23	925
FINISHED MATERIAL		
Standard rails	32.58	600
Merchant bars	40.73	750
Normal beams and profiles	40.73	750
Plates, 5 millimeters and thicker	43.44	800
Sheets, black, 3 millimeters	46.16	850
Sheets, galvanized, 1 millimeter	108.60	2,000
Plain wire	67.88	1,250
Galvanized wire	81.45	1,500
Wire nails	70.59	1,300

All prices are f.o.b. furnace or works.

the makers of pig iron on the coast.

The disaster in Japan has a decided business interest for this country from different points of view. Several Sheffield firms expect to lose heavily through the destruction of considerable stocks of high-speed and other steels stored in Tokio and Yokohama. Japan has been an important customer in this country, which furnished about a fourth of Japan's iron and steel imports last year.

The eastern orders have stimulated the galvanized sheet business, prices having advanced up to £19 ($86.26) per ton, a rise in value of several shillings. The sheet mills are getting busy, and look for continued activity, at least to the end of the year. The sheet trade happens to be the one department in which Scotland is finding some animation. The orders for lighter gages make a good showing on the accepted contracts. In the Staffordshire district the sheet mills are almost the only portion of the plant in anything like continuous employment.

The tin plate trade is another line with a distinctly brighter outlook. Makers having found it possible to quote slightly higher prices. The stabilization committee has been able to defy the criticism of merchants and others, and confirmed for a further three months the existing price of £1 3s 1½d ($5.24) coupled with the arrangements to supply billets at £9 2s 6d ($41.42) with a rebate of 7s 6d ($1.72). Bookings have been moderately plentiful lately, and in addition to orders from Canada some contracts are said to have been made with American consumers, Welsh plates being slightly cheaper on delivery than those of home manufacture. The tin plate market is firm, very fair orders having lately been placed with the Far East and the Continent. Fortunately the trade has no threatening labor troubles, the only matter now under consideration being a proposed fund for unemployment and superannuation initiated by the manufacturers, and now under consideration by the workmen who are not altogether satisfied in regard to certain details.

The only other wage alteration of importance is a reduction of 8¼ per cent in the wages of blast furnacemen on the West Coast following a reduction in the selling price of hematite mixed numbers of 6s 10d ($1.55) during July and August, as compared with the previous two months. The average selling price was shown to be £5 9s 2d ($24.78).

In spite of many discouraging circumstances the steel trade continues to build its hope on an autumn revival. At the moment foreign competition is not specially severe. The rise in coke values

in France has practically arrested offers of French steel of any description. Belgium is cultivating the market with some keenness, but quotations are not on a business basis. British billets costing £7 15s ($35.18) are substantially on the same basis as Belgian. Four-inch descriptions at £7 7s 6d ($33.48) offer no advantage over the prices of British steel. There still is a certain amount of material more favorably bought some time ago which has yet to be delivered.

Almost the only item in which Belgium can do business is joists, obtainable here delivered at £8 17s 6d ($40.29) to £9 ($40.86) or about 10s ($2.27) below the English material. Certain kinds of thin sheets, for example 3/16-inch can be bought at £1 ($4.54) less than the figure demanded by British works. Both items are important in view of the fair amount of steel needed for structural work and motor building.

A large number of British works are declining to do business at the bottom prices. A small minority have accepted £7 15s ($35.18) for billets, although their works are of large capacity. The bulk of the steelworks want £8 ($36.32) and upward. In finished steel, certain offers also are turned down on the question of price.

The shipping industry continues under a cloud, the boilermakers' dispute showing no sign of approaching settlement. The slump in shipbuilding is partly responsible for the placing by the Barrow steelworks of their men on day-to-day contracts, owing to the severe depression. It is known that the railways have large programs under consideration, but in the meantime the rail mills are badly in need of work, with intervals of complete idleness. Further discouragement has been caused this week by the announcement that the Federation of Engineering and Shipbuilding trades has decided to apply for an advance of 10s ($2.27) per week in the wages of its shipyard members. Such an advance will not only turn down pending contracts, but will make certain work on hand unprofitable.

Little new business is being placed, but Dorman, Long & Co., the largest steel syndicate in the north of England have booked a large order for sleepers for delivery in India. The order is to be executed by the allied firm, North Eastern Steelworks, whose mills will be kept busy for about six months.

The Staffordshire iron trade shows no improvement and prices of iron are being cut, though marked bars are maintained at £14 10s ($65.83) with a fair tonnage of orders. Most of the Staffordshire mills depend upon steel rerolling for their moderate degree of activity. Among the recent developments is the acquisition by W. F. Cotterill & Co., Ltd., one of the largest nut and bolt making concerns in the black country, of three other works making similar products. The Cotterill firm is connected with the Guest, Keen & Nettlefolds syndicate, which has lately acquired an ironworks under the name of Tolley, Sons & Bostock, having a weekly capacity of 400 tons. The idea is to utilize the mills chiefly for the rolling of nut and bolt iron. The recognized price for this class of material is £10 15s ($48.80), but many nut and bolt makers use Belgian bars now obtainable at £8 17s 6d ($40.29). The local material is decidedly preferred if offered at an economic price.

The steel scrap trade continues dull, but there is less offering, the steelworks being now more inclined to retain their scrap for use in their own furnaces rather than sell it at the present unprofitable price.

German Prices Above World Markets

European Special Service

BERLIN, Sept. 15.—The German iron and steel trade is quieter than it has been for many years on account of the high price to which quotations have been pushed, resulting from the necessity for quoting in sterling exchange and the excessive cost of fuel imported from England. Prices generally are above the level of the world's markets and only a few new orders are coming in.

Short time working and dismissals of employes are increasing. The big plants of Siemens, Orenstein & Koppel, and others are operating only two or three days per week and have given notice of discharge to many of their employes, effective at the end of this month.

Warehouses and merchants have fairly large stocks, some of which are being liquidated at cut prices owing to the shortage of money. Although prices are now quoted almost exclusively in pounds, they are payable in paper marks in current exchange at the date of payment. Only imported iron and steel is actually paid for in foreign exchange. While consumption is low, the mills in unoccupied territory still are fairly busy owing to the fact that they cannot furnish sufficient steel for the requirements of the country, with the Ruhr production unavailable. The sheet mills in Siegerland are busy. Upper Silesian blast furnace owners have cancelled their orders for German iron ore.

Prices Advancing in French Market

European Staff Special

Office of IRON TRADE REVIEW,
23 Rue de la Bienfaisance

PARIS, Sept. 15.—The French iron and steel market is firm and prices are advancing. The increase of 15 francs ($0.90) per metric ton in the cost of coke which became effective Sept. 1, and the probability that there will be another advance of at least 30 francs ($1.80) on Oct. 1, has started a buying movement. Furthermore it is reported that the stocks of coke in the Ruhr will be exhausted by the end of the year and if this source of supply is cut off blast furnace operators in eastern France and Lorraine will be faced with a serious problem. With the franc at present levels neither English nor American coke can be imported. It is true that the French are taking steps to exploit the Ruhr cokeries, but it is yet too early to make any predictions as to what will be the outcome of this venture.

According to statistics compiled by the Comite des Forges, 107 blast furnaces were blowing in France on July 1, as compared with 106 in June, 77

Franc—$0.06

in April and 116 in January. Pig iron production during July amounted to 436,420 tons as against 447,000 tons in June. It is anticipated that production will continue to fall off progressively until the reparations question has been settled as there is little hope of increasing coke production in the Ruhr until France and Germany reach some definite agreement.

The price of pig iron has been advancing steadily since the beginning of August. Basic bessemer chill-cast No. 3 foundry pig (2.50 to 3.00 per cent silicon) is now quoted at 420 francs ($25.20) f.o.b. furnace, whereas one month ago this quality was being offered at the same figure c.i.f. New York. Hematite pig has just been advanced 10 francs ($0.60). Furnaces in the Center and Rhine districts are now asking 460 francs ($27.60) for mixed numbers.

Steel production during July amounted to a total of 399,528 tons classified as follows: Acid bessemer 5479 tons; basic bessemer 242,240 tons; open hearth 147,136 tons; crucible 1089 tons; electric furnace 5384 tons. Prices are firm and the mills cannot promise delivery under two months. Export business is brisk and the mills are selling abroad at more profitable prices than can be obtained in the domestic market. An important jobbing house reports that they recently sent out inquiries calling for prices on blooms, billets and merchant bars to eight mills; four of which replied that they were out of the market and the others did not even acknowledge receipt of the inquiries. The foundry department is enjoying a good demand.

The railroads are coming into the market. The Chemin de fer du Nord has placed an order with the Etablissements Arbel for 100 40-ton freight cars. The Compagnie de Chemin de fer d'Orleans recently ordered 30 second-class passenger cars from Dyle & Bacalan on which the latter quoted 190,000 francs ($11,400) each. The Paris Tramway System has commenced the manufacture of 500 street cars of a new type.

Business Closed on Coast

Fifteen Tanks Awarded Involving 6000 Tons of Plates—Building Continues Heavy—Scrap Prices Have Softened

SAN FRANCISCO, Sept. 22.—Although few large tonnages of steel products have been closed this week on the Coast, steel mill representatives report a fair volume of new business booked. The feature of the structural market this week was the awarding of two 80,000 and 13 100,000-barrel tanks for the Pan American Petroleum Co., involving 6000 tons of plates, to the Chicago Bridge & Iron Works. Building activity continues and due to the fire which destroyed over sixty blocks of residences in Berkeley on Monday a large increase in building permits is to be expected during the next 90 days.

Pig Iron and Coke

The pig iron and coke market is devoid of anything of interest this week, few sales have been reported and new inquiries are light. Some Chinese iron is being offered at around $33 to $34 a ton, c.i.f. duty paid, but as far as can be ascertained no sales have been consummated. Spot lots of Scotch and continental foundry iron are quoted at from $36 to $37 a ton.

Bars, Plates and Shapes

New business for both merchant and reinforcing bar material coming in to local mill operators is not as heavy as was the case several weeks ago. Reinforcing bars are by far the most active but the bulk of the awards involve lots of from 30 to 60 tons. A total of 600 tons were involved in the larger awards made during the week. Prices remain unchanged at 3.25c and 3.50c, f.o.b. San Francisco, for merchant and concrete bars respectively.

With the exception of the 6000 tons of plates for tanks for the Pan American Petroleum Co. new business is confined to miscellaneous small lots. Interest is now centered in the 17,000 tons for the Bull Run pipe line, bids on which will be opened Oct. 3. Prices continue unchanged at from 2.65c to 2.75c, Atlantic seaboard, equivalent to from 2.95c to 3.10c, c.i.f., Coast ports, depending upon the water freight rate secured. Several companies are seeking tonnage at 35 cents and it is understood that the United Steamship Co. has contracted with one large mill for 30 cents for the balance of the year. Foreign plate prices are out of line at the moment, 3.00c duty paid c.i.f. San Francisco being the best price noted.

Only two structural shape lettings occurred during the week for a total of 700 tons, and awards pending involve a total of less than 500 tons. However, fabricators continue to find themselves well booked up with numerous smaller jobs. Prices on the foreign plates range around 2.65c to 2.70c duty paid c.i.f. coast ports, while 2.65c Atlantic City is the minimum for the domestic.

Other Finished Material

No action has yet been taken on the Southern Pacific Co.'s inquiry for 10,000 kegs of track spikes and 2100 kegs of track bolts. The municipal railway at Eureka, Cal., is asking for bids on 1000 tons of 70 pound rail while the San Francisco municipal railway will open bids on Oct. 3 for 370 tons of rails.

Demand for cold-rolled products is not heavy but several fair tonnages have been placed recently at 3.25c base Pittsburgh. As far as known all mill representatives in this district are adhering firmly to the 3.25c price. One interest this week placed 100 tons of 3.25c base.

In wire products nails and plain wire are most active. While a heavy buying movement of fencing is not expected at this time of the year, autumn demand is picking up. Prices are firm at the established Pittsburgh levels.

During the past week no municipal awards of cast iron pipe were reported. New inquiries of the week total over 5500 tons of which 5200 tons is for Los Angeles. Prices remain unchanged and firm.

Continued heavy demand for standard pipe and oil country goods is reported and little or no improvement is noted in the condition of the available stocks on the coast, a decided shortage existing in many sizes.

Old Material

Prices on both melting steel and cast iron scrap have softened of late and from $15 to $15.50 a ton delivered mill is being paid for the former while prices on the latter range from $27 to $29 a ton delivered. Movement in both classes is light and the majority of sales have involved small lots.

Warehouse Material

Movement of out-of-stock material is reported by distributors as being of a satisfactory nature, all lines moving well and demand coming in from diversified sources. Prices on boiler and structural rivets have been changed, locally from 5.35c and 5.25c to 5.70c and 5.50c respectively and in Los Angeles from 5.35c and 5.25c to 5.45c and 5.35c respectively.

Western Business Strong

SEATTLE, Sept. 22.—Iron and steel dealers in this territory report no new business closed as a result of the catastrophe in Japan. There has been less inquiry this week than last but this is due in some degree to the difficulty of cable communication. Nevertheless some inquiry for all kinds of bars and angles, nails, sheets and corrugated material has been received. To some extent this inquiry is thought to be speculative. A large quantity of corrugated sheets has been shipped from local stocks, this, however, being a part of the relief program.

The general business situation is strong. Building is proceeding actively in Seattle and vicinity. This city will set a construction figure of $25,000,000 this year, a new high record.

During the week several important projects have been announced. The Seattle Ice Cream Co. awarded the contract for building a two-story factory and garage of reinforced construction, 186 x 120 feet to cost $300,000, complete with machinery and equipment. Seattle Aerie No. 1 F. O. Eagles, has voted to proceed with the construction of a 6-story lodge building and auditorium to cost $900,000. The city council has just completed financing the $500,000 steel Montlake bridge authorized at a recent election.

Awards made by the Washington state highway commission include: Two reinforced T-beam bridges on Ocean Beach highway to Lindstrom & Feigeson for $19,487; steel truss bridge with concrete approaches in King county, to Ward & Ward, $28,360; steel truss bridge with concrete approaches in Skamania county, to Union Bridge Co., $47,447.50. In these contracts about 60 tons of reinforcing bars are involved and 175 tons of structurals.

Pig Iron and Coke

The market shows no change although the undercurrent is strong and indicates increased activity and probably higher prices before the end of the year. In the meantime the consuming plants are fairly well stocked. The best grade of Glengarnock is still quoted at $36. There is no other iron being offered here at present. The coke market is featureless, fernie being brought from British Columbia, as required, for mixing with domestic grades. There is no call for foreign coke in this territory.

Bars, Plates and Shapes

Jobbers report considerable activity in plates although there is less demand for bars than two weeks ago. Award of reinforcing materials for the Olympic hotel and Dexter Horton building, involving from 1200 to 1500 tons each, went to local interests. There has been no change in prices. Operations at the local steel plant are on a par with last month. Japan is inquiring for bars and angles in considerable quantity but no business has yet resulted and some of this is thought to be of a speculative nature. No foreign bars are offering in this market at present.

Everything in stock is turning over in good volume. The price list re-

mains unchanged. Sheets have improved materially, and are moving in larger tonnages. In the meantime jobbers and mills are absorbing the increased water rates on steel products. However, interest attaches to the decrease in some of the transcontinental rail rates. From the Pittsburgh territory the basic rates are to be reduced in October from $1.34 to $1.15. The latter figure on sheets, for example, is competitive with the present rate of 95 cents by water considering the better delivery by rail.

Local warehouses are practically cleaned of painted, galvanized and corrugated sheets as their stocks were purchased in bulk and rushed to Japan for relief purposes, the amount being nearly 250 tons. Consequently heavy orders have been placed to replenish. Building hardware continues in good demand. The Oak Lodge water pipe contract, Portland, involving more than 500 tons of steel pipe, was awarded this week to the Youngstown Sheet & Tube Co., through George F. Thompson & Co., Seattle.

Old Materials

Dealers report the situation unchanged. The market is lifeless and there are no indications of improvement in the near future. Buyers are willing to pay $12.50, gross ton, for steel scrap while cast iron is featureless at from $20 to $22, according to grade. Stocks are still exceptionally low.

Tool Sales Gain

Sales of the Independent Pneumatic Tool Co., Chicago, were $2,117,094 against $2,080,614 in the entire year of 1922. Net income for the seven months was $949,436 compared with $643,169 for the preceding 12-month period. The company also has current assets of $3,162,331 compared with $2,924,000 on Dec. 31, 1922. Current liabilities have been reduced from $524,111 on Dec. 31, 1922 to $284,819.

Restoring Inventory

NEW YORK, Sept. 25.—One of the country's largest manufacturing interests, with enormous requirements of raw materials, has decided to increase its purchases. The company usually maintains an inventory sufficient to meet six months' requirements, but since last April had gradually reduced this and now has a supply equivalent to about two and a half month's requirements. The company now has decided again to purchase more liberally and beginning in October, will bring back its inventory to normal size. The decision is based on a thorough study of fundamental conditions and general business prospects.

Revision Made

Pig Iron Contract is Standardized by Purchasing Agents

Certain revisions of a standardized form of contract for pig iron purchases were decided upon at a meeting of the iron and steel committee of the National Association of Purchasing Agents, held at the William Penn hotel, Pittsburgh, Sept. 18. Copies of the revised contract are available to members of the organization at their national headquarters. In addition, it was decided at this meeting that the chairman, G. Walter Sanborn, United Engineering & Foundry Co., Pittsburgh, should formulate a standard purchase order form for iron and steel scrap and that this should be considered at the next meeting of the committee. The chairman also was authorized to draw up a set of standard specifications on pig iron, which after being approved by the other members of the committee, will be submitted to the full membership by publication in the organization's official paper.

Work in connection with the preparation and adoption of standard specifications on iron and steel scrap also will be pushed to conclusion this fall and winter, according to a decision reached at this meeting. John R. Freeman Jr., physicist of the bureau of standards of the United States department of commerce, who was present at the meeting, expressed the willingness of the bureau to co-operate with the association in this movement and a meeting is to be held under its auspices at a later date, which will be attended by scrap producers, dealers and consumers.

The committee voted unanimously that some effort be made to formulate standard specifications for tool steel. To that end, the various members of the iron and steel committee were instructed to obtain data from tool steel manufacturers and send it to the chairman who is to formulate tentative specifications for submission to and consideration by the committee at its next meeting. It was pointed out by Mr. Freeman of the bureau of standards that a large amount of technical knowledge and research work would have to be undertaken to arrive at a close specification.

The meeting was attended by Chairman G. Walter Sanborn, S. H. Hedges, Republic Iron & Steel Co., Youngstown; W. W. MacMillen, National Malleable Castings Co., Cleveland, H. H. Onstott, Acme Steel Goods Co., Chicago and R. V. Smallwood, Wheeling Steel Corp., Wheeling, members. John R. Freeman Jr., bureau of standards United States department of commerce, A. G. Hopcraft, president of the Cleveland association and vice president of district No. 4, J. C. McClure, American Rolling Mill Co., Middletown, O., H. C. Wickline, Union Steel Casting Co., Pittsburgh and J. B. Connally, Meta Machine Co., West Homestead, Pa., also attended and contributed to the general discussion concerning the major and minor problems which were treated at this gathering. D. B. Hines of the Dominion Iron & Steel Co. Ltd., Nova Scotia, Canada, the sixth member of the committee on iron and steel was unable to attend the meeting.

Production of Fire Clay Shows Increase

Production of fire clay brick increased approximately 3 per cent in August over July, going from 208 to 211 per cent of capacity, while shipments increased but 2 per cent, going from 73 to 75 per cent, according to the data prepared and distributed by the Refractories Manufacturers' association.

FIRE CLAY

	Aug. 31, 1923	July 31, 1923
Capacity reporting.....	74,341,977	74,591,977
On hand last day preceding month	157,432,125	155,573,382
Production	58,839,866	56,976,868
Shipments	56,219,590	54,607,581
On hand last day current month	160,052,401	157,942,669
New orders received during month	48,505,006	45,773,431
Cancellations	645,660	605,177
Net new business.....	47,859,346	45,168,254
Unfilled orders last day current month	71,400,345	79,926,439

Silica brick production on the other hand fell off about 8 per cent, going from 53 per cent in July to 45 per cent in August, shipments witnessing a similar decline.

SILICA BRICK

	Aug. 31, 1923	July 31, 1923
Capacity reporting.....	22,565,500	22,565,500
On hand last day preceding month	34,243,812	34,210,226
Production	10,245,769	11,980,788
Shipments	10,132,789	12,047,202
On hand last day current month	34,356,792	34,243,812
New orders received during month	6,695,726	8,351,087
Cancellations	135,512	556,712
Net new business.....	6,560,214	7,794,375
Unfilled orders last day current month.....	27,202,475	30,775,000

It is pointed out by the association that the difference in tonnage (or in percentage of monthly capacity) between that shown as "stock on hand at end of the month" and "unfilled orders at end of the month" does not necessarily mean free stock in the sense that any great portion of it is available for shipment on new orders.

Much of the stock too, represents brick made in excess of tonnage specified on certain orders when a full run on such shapes has been a more economical practice than the limiting of production to the exact number called for on the order would have been.

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Railroad Efficiency Is Market Factor

WHEN the year of 1923 is viewed in retrospect the remarkable traffic record of the railroads will stand out as one of the great achievements of the period. Not only are the railroads handling more freight than ever before in the history of the country but they are doing it with ease and with an absence of the car shortages and congestion which usually accompany an era of extraordinary industrial activity.

The performance of the railroads this year is of more than passing significance in the steel markets. In the summer of 1920 the shortcomings of the railroads comprised a dominating factor in the market for many weeks. Deliveries were so delayed and the movement and flow of materials so distorted and confused that the normal course of supply and demand was obscured. Consequently prices soared as buyers scrambled for goods and placed three orders in the hope of getting delivery on one.

That was the picture three years ago. It has no counterpart with the present situation. The railroads have been pouring goods of all kinds into the channels of distribution in an unremitting stream. Steel production has passed all precedent but deliveries have been equal to the occasion.

Under these conditions consumers have been under no constraint to buy steel beyond their real needs and to place orders further ahead in the future than they otherwise might, merely in order to insure themselves against their requirements. The artificial stimulus injected into the steel markets by retarded transportation is entirely absent today. Unquestionably this is one of the influences in the present lack of eagerness in forward buying.

Other influences, more or less tied up with the transportation conditions, are operating also. One is the relative stability of prices. There is always less impulse to buy when prices are even than when they are rising or tending to rise. For some months finished steel prices have been following a level course. At present there is no indication of immediate sharp advances. The likelihood of equally marked declines also is absent in view of the recent increases of cost through wage adjustments incident to elimination of the 12-hour day. The railroad situation has played no small part in keeping prices steady this year. In 1920 fictitious shortages created by delayed deliveries boosted values to an uneconomic basis.

The other reason which may weigh with consumers in pursuing a careful buying policy is the condition of ample stocks. The great spurt of output in steel and in other lines last spring apparently was to make up shortages accumulated during the long depression. These stocks now have been made up and production has continued high. It has been possible to maintain operations because car shortages have not interfered with coal and raw material supplies. There is no evidence, however, of an over-supply of finished steel.

Thus the transportation situation runs like a thread through the steel industry and may be traced as a dominant factor through the various conditions which combine to influence and shape the status of the market.

Putting Humanity Before Profit

FIRST estimates of loss of life and damage to property by the elements in the Japanese disaster have been scaled down sharply in the official figures. It remains to the credit of the iron and steel industry and its leaders, however, that humane and not economic considerations from the first have been their sole impulse. Immediate steps were taken by leading companies to give substantial monetary aid to the stricken people and to prevent any assault of emergency needs upon the markets from adding to the burden of the sufferers.

Immediately after the news of the earthquake there were many rumors in America's financial center as to the possible effects of the catastrophe upon American

financial and commodity markets. As is always the case in times of distress there were those who would make capital from the troubles of others. A speculative boom in galvanized sheets and other items which appeared necessary to reconstruction began to sprout. Certain Japanese interests, well known for their speculative policies, speedily entered the market and bought a little material. Some American speculative houses also put feelers into the markets with a view to accumulating materials which might be needed for emergency wants. However, the boom was nipped in the bud by the statement of steel makers that any tonnage needed for Japanese account would receive first attention over all other orders. Even if the destruction had been as extensive as at first rumored, profiteering would not have been at the expense of the Japanese. In this tragic event the American steel trade has instinctively followed the cross and not the sign of the dollar.

Valuations Give Rate Foundation

VIEWS are sometimes expressed that after values of railroads for rate-making purposes are fixed by the interstate commerce commission, adjustment of freight rates can be accomplished with comparative ease in the various rate-making districts. On the contrary, the fixing of the valuations is but a step toward the possible practical results that may be obtained. Fixing the valuation for one or two roads leaves practically no ground upon which to start conclusive readjustment of the rate structure. Even when the road valuations for one district are determined, these most be gone over thoroughly and at great length in order to determine a final basis for rate figures by the interstate commerce commission.

After months of investigation, the interstate commerce commission finally has disposed of the first two contested cases to come before it under the law authorizing it to fix a physical valuation as a basis for rate making. Single-sum values of $45,000,000 for the San Pedro, Los Angeles & Salt Lake railroad and $23,245,257 for the Atlanta, Birmingham & Atlantic railroad were fixed by these two decisions. Some time ago a formal valuation finding had been returned on the property of the Evansville & Indianapolis railroad but no protest was filed by that company and the finding then was made final.

A precedent for further valuation orders is said to have been established in the fixing of the valuation of the Atlanta, Birmingham & Atlantic. The Atlanta line is a property, according to the commission, that has been a consistent loser, but it was held that its valuation could not be based upon a purely physical consideration.

Much misunderstanding apparently has arisen as to these valuations. The commission has declared that in the determination of a value for rate-making purposes "we are not limited and cannot be confined to a mere formula." A number of views are expressed that these rate-making valuations represent the physical value of the roads for any and all purposes. This, of course, is not true. The valuations are to establish a basis for rate-making consideration and for nothing else. They establish a foundation by which can be determined what rates are necessary for the roads to earn the percentages which have been contemplated in the federal transportation act.

Is Business Perspective Wrong?

A GOOD deal is being said these days about distorted perspective of the average business man. There is no question that the experiences of the war and its aftermath have left certain definite impressions and modes of thought upon the country collectively and individually from which it is difficult for the human mind to reason to a rational conclusion. The business conditions of 1920 and 1921 represent two extremes produced by this lack of a sense of true proportion.

This accustomed attitude of mind undoubtedly is having a considerable influence upon business sentiment today. A volume of trade which under more normal standards would be adjudged satisfactory and wholesome is looked upon with misgiving and without confidence. Anything short of full or near capacity operation apparently fails to command confidence that demand is good and business is sound. Yet this view fails to take into account whether or not it is a case of over-capacity or under-consumption that is the basic trouble. When the enormous increase of the country's productive capacity in iron and steel as well as in many of the other essential materials of industry is considered, it is fairly safe to say that most of the business doubts and troubles today can be attributed to this cause and not to failure of demand. Certainly pig iron has been suffering from such a situation. Then, too, what under more normal tests would constitute fair margins of profit and due rewards for enterprise at the present time fail to satisfy or to stimulate endeavor.

It goes without saying that it costs a great deal more to do business today and that there are many unescapable inequalities of cost that probably only time and a good deal of it will eradicate, if ever. These all have their bearing upon the degree of joy and satisfaction that the average man gets out of his business. But dwelling upon them to the exclusion of the fact that the country is going ahead steadily and will continue to go ahead and requires planning to that end, will not help matters. It is a fortunate trait for the individual to know when he is well off and to be able to reflect that conviction. Just now there is a good deal of evidence that business either has forgotten how to do it or doesn't care to do it under existing conditions.

German Surrender New Factor

Foreign Exchange Markets Gain—Stocks Continue to Fluctuate—European Stability Would Be Stimulating—Good Fall Trade Indicated—Crest of Industrial Activity Is Passed

BY JOHN W. HILL, FINANCIAL EDITOR

FINANCIAL and business sentiment has been given a new factor for consideration in the complete surrender of Germany on the issue of passive resistance in the Ruhr. The first response of the foreign exchange markets to this development was seen in a marked stiffening. The franc in particular was strong. It has cancelled nearly half of the loss registered from January to August. The attitude of the stock market was less clearly defined. Shares have continued to gyrate without much direction.

It is too soon to determine how European events will shape themselves. There is such an intermingling of politics, racial hatreds, national jealousies and fears, that a businesslike settlement based upon the plain facts of the situation is next to impossible. The ideal arrangement would be one giving France her coveted security and permitting Germany to begin her financial and industrial rehabilitation.

Meanwhile business sentiment continues somewhat confused. Autumn trade is expanding more slowly than was expected. The stock market is hesitant, forward buying in many lines continues restricted and manufacturing activity is decreasing. Good trade this autumn, however, seems assured. Employment is large and wages and purchasing power are high. Crops are good and the position of the farmer is 12 per cent better than it was one year ago. Money is in ample supply and there is no stringency anywhere. Interest rates are near their fall peak. Some authorities believe that shortly money will begin to fall and that bonds will touch their low and begin a long swing upward. According to this view the stock market will tend downward until next spring.

As the situation stands today it seems that the crest of forward buying and industrial production has been passed. The great depression-created vacuum of goods has been filled up. Stocks are ample, railroad deliveries are free and buyers lack the urge to commit themselves too far in advance. The industrial structure is now adjusting itself to a basis of providing for normal current requirements. These needs are large but next year will disclose how much they are exceeded by the country's expanded capacity. Some recession from last spring's peaks is to be expected, but there is no possibility of a depression as in 1921. It is likely that 1924 will more nearly compare with 1911, which is now regarded as a fairly normal year, with activities below boom peaks, but above depression lows. The unknown factors in the outlook are the extent of Japanese demand and the effects of European developments.

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Wages and Living Cost	April 5
Iron and Steel Production Rate	Feb. 1
Long Time Trend of Wages	Aug. 3

The Barometer of Business

WEEKLY COMPARISON

	Last week	Week before	One mo. ago	One year ago	Average 1913
Business failures	296	289	324	392	...
Cash ratio Fed. Res. System.	77.2	75.9	77.9	78.3	...
Loan rate, 4-6 Mo. N. Y. (per cent)..	5-5¼	5¼	5	4½	4
Aver. 25 ind'l shares	$101.60	$101.86	$104.72	$107.02	$58.19
Average 25 rail shares	$57.18	$56.40	$56.69	$68.70	$82.97
Aver. 40 bonds	$76.32	$76.31	$76.70	$82.44	$93.00
Car loadings (week ended Sept. 8)	928,858	1,092,567	978,162	832,744	*883,415
Bank debits 244 cities (000 omit'd)	$9,726,342	$8,316,434	$8,182,305	$9,735,437	.....

*1920

FOREIGN EXCHANGE (Demand)

	Normal	Sept. 24 (close)	Week before	Month ago	Year ago
Sterling	$4.86	$4.56	$4.53	$4.55	$4.43
Francs	19.3c	6.18c	5.77c	5.69c	7.57c
Lira	19.3c	4.61c	4.40c	4.33c	4.20c
Marks	23.8c	0.00000073c	0.00000075c	0.000019c	0.06c

MONTHLY COMPARISON

	August	Month before	Year ago	Monthly average 1913
Dodge building Awards in 36 states	$298,629,000	$315,025,000	$350,000,000	$82,126,000
Business failures: Number	1319	1231	1714	1336
Liabilities	$34,334,722	$35,721,188	$40,279,718	$22,732,000
Exports	$313,000,000	$303,030,000	$301,000,000	$207,000,000
Excess of gold imports	$30,636,000	$27,406,000	$18,136,355	†630,716
Bureau of Labor Price Index	150	151	155	100
Bradstreet's Price Index	139.7	138.7	130.7	100
Economist's British Price Index	4188	4182	4257	2717
Cost of Living Index	161.6	161.9	154.5	100
New incorporations	$335,462,000	$724,920,000	$646,605,000	$172,301,000
Railroad net earnings	*$84,591,400	$87,742,000	$69,321,000	$59,900,000

*July. †Monthly average excess exports.

The Business Trend

September 27, 1923

TRADE TODAY, TOLD BY IRON TRADE CHARTS

GENERAL SITUATION—Autumn trade activity developing but more slowly than generally expected; restraint upon sentiment imposed by European situation and by few important weak spots in domestic business including petroleum, tires, and copper; underlying conditions generally sound, however.

FARMER PURCHASING POWER—Agricultural situation improving, save for wheat farmer; crop and livestock prices higher; their purchasing is now 15 per cent more than one year ago.

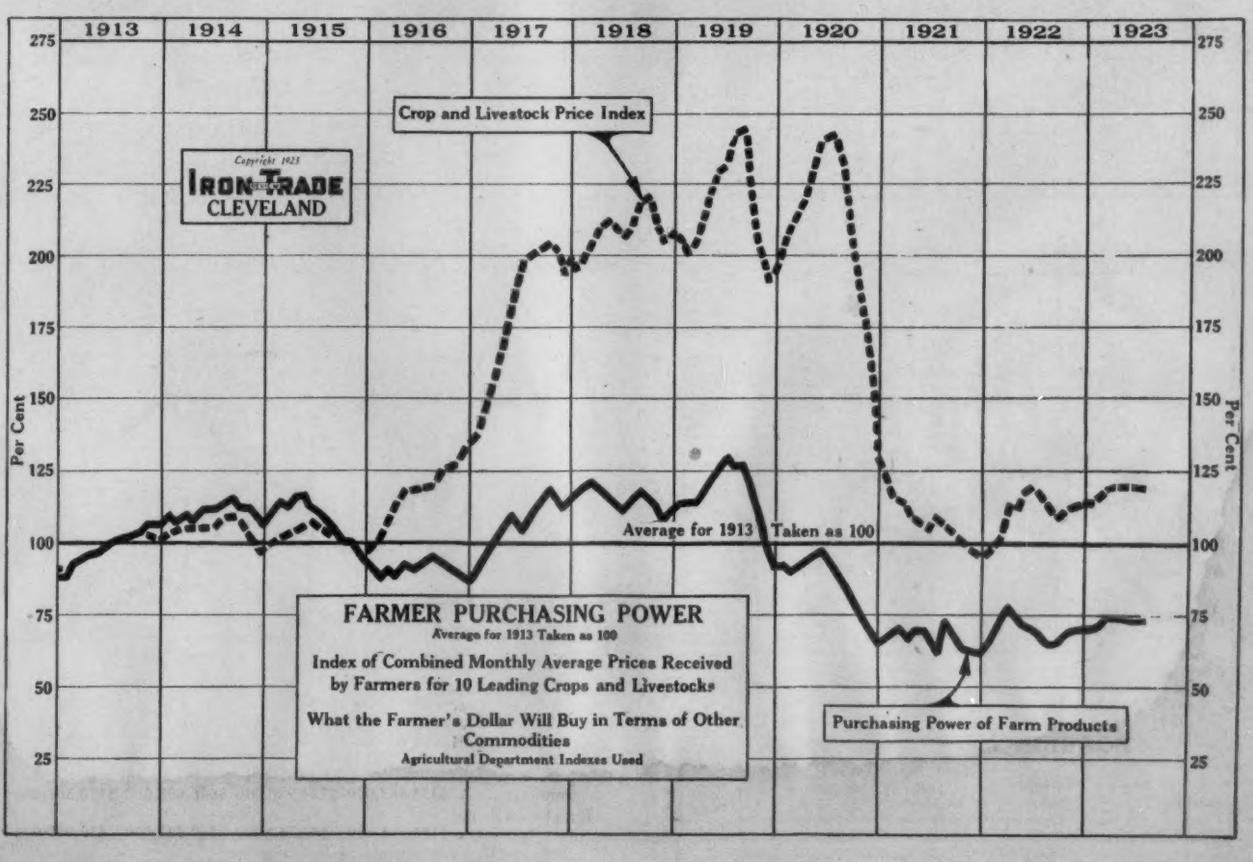
STRUCTURAL AWARDS—Unusual recovery in certain types of construction reflected in heavier demand for structural steel; August bookings were 56 per cent of shop capacity against 51 per cent in July.

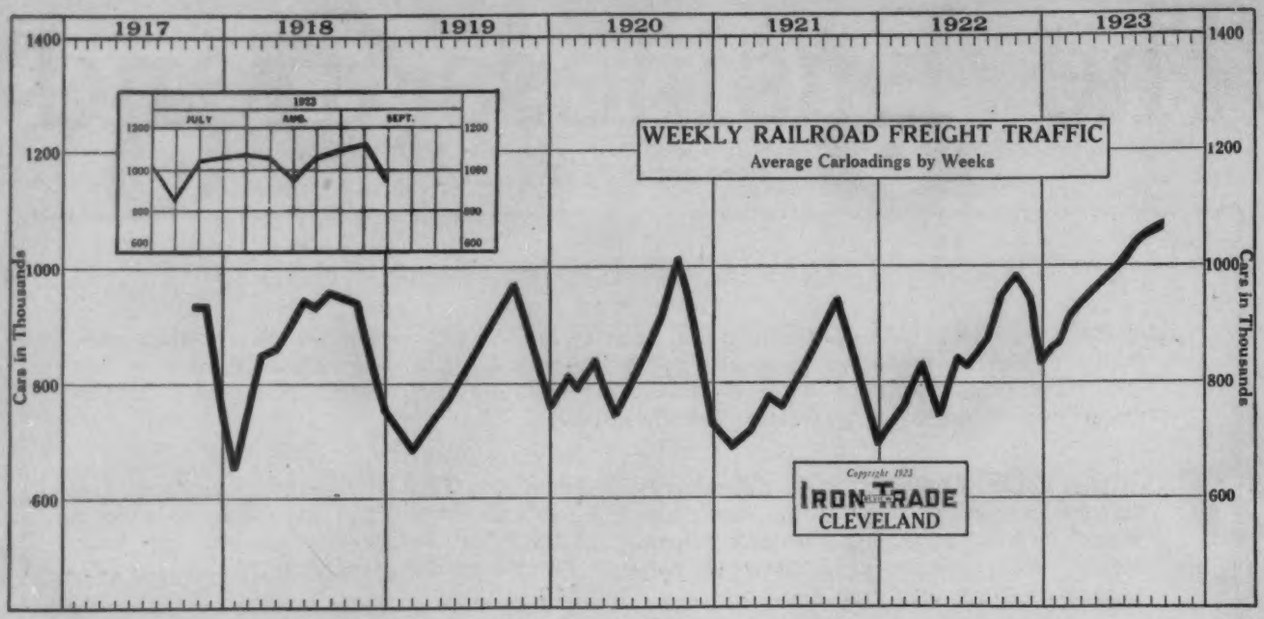
ABERTHAW INDEX—Construction costs at 106 per cent over 1913 show no decline as result of recent let down; materials slightly down and in freer supply, but wages continue at peaks.

FOREIGN TRADE—August exports gain and imports drop; favorable balance of trade of $38,000,000 highest for year; year's excess of imports reduced to $89,000,000.

FREIGHT TRAFFIC—Drop in car loadings for week of September 8, due to Labor day holiday; daily average high; net car surplus remains over 57,000 daily average.

SECURITIES—Average share values declined 25 per cent from March to August; up 6 per cent since August; recently speculative activities have featured movements; definite trend active.

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JULY
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SEPT.
WEEKLY RAILROAD FREIGHT TRAFFIC
Average Carloadings by Weeks
Cars in Thousands
Copyright 1923
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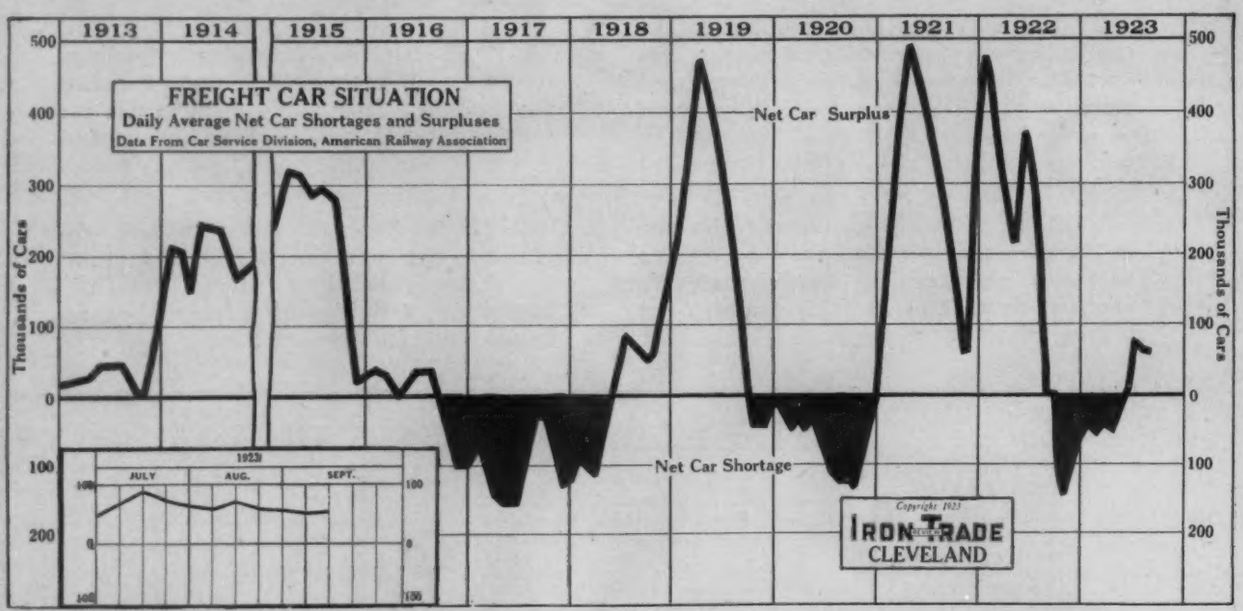
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FREIGHT CAR SITUATION
Daily Average Net Car Shortages and Surpluses
Data From Car Service Division, American Railway Association
Net Car Surplus
Net Car Shortage
Thousands of Cars
1923
JULY
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SEPT.
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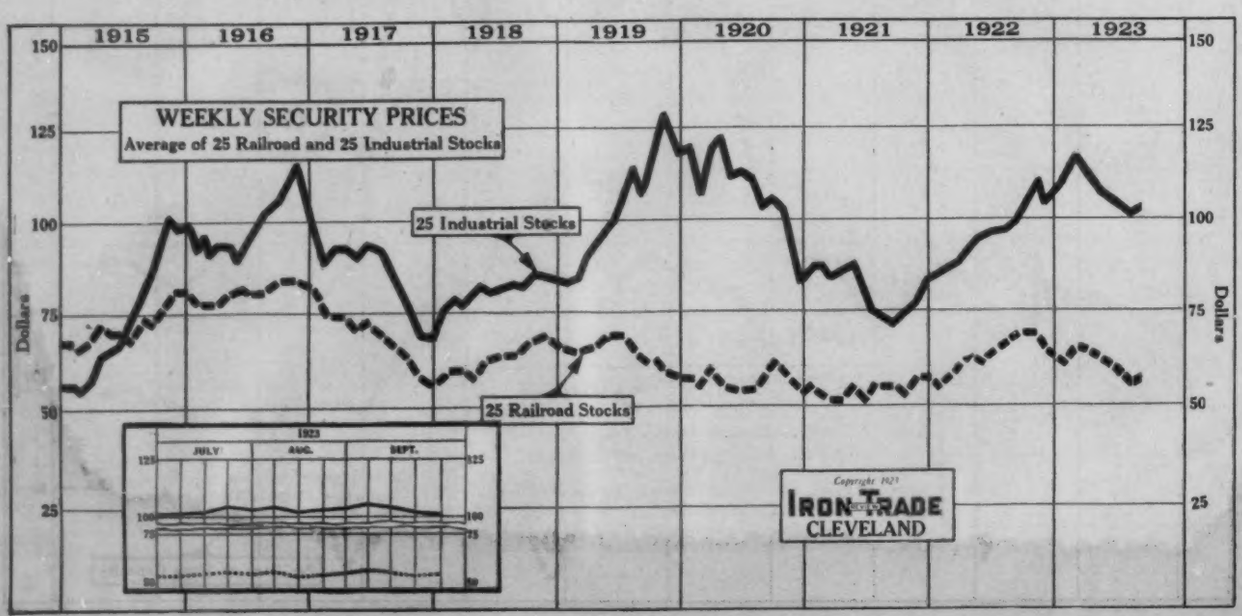
CLEVELAND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WEEKLY SECURITY PRICES
Average of 25 Railroad and 25 Industrial Stocks
25 Industrial Stocks
25 Railroad Stocks
Dollars
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JULY
AUG.
SEPT.
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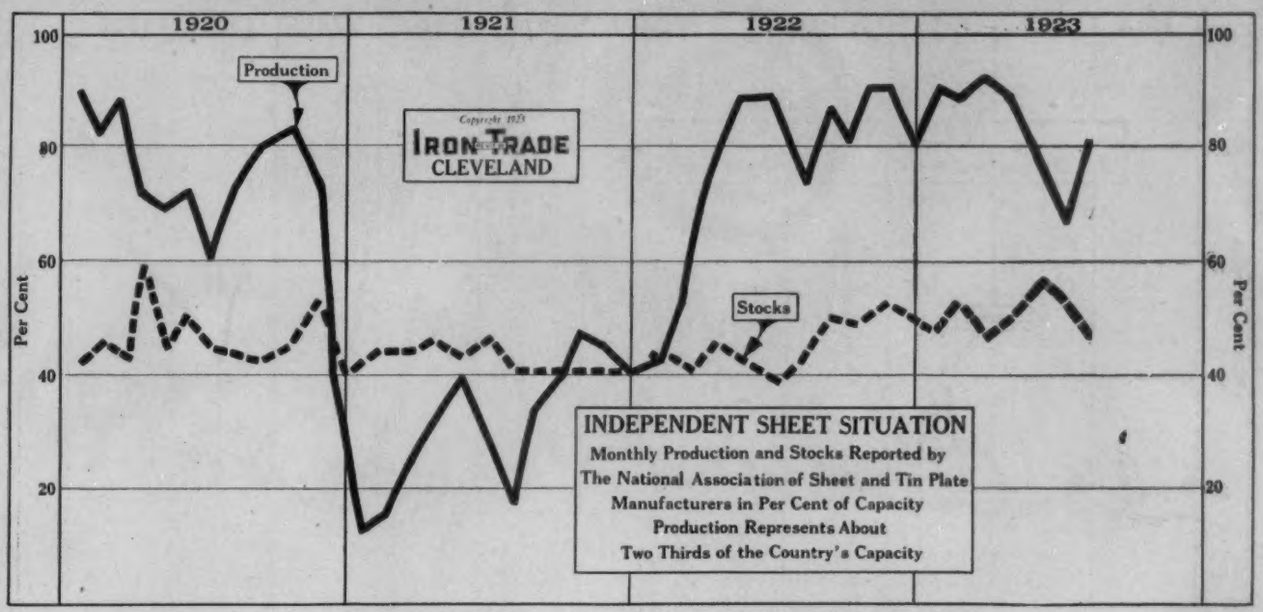
CLEVELAND


1920
1921
1922
1923
Production
Stocks
Per Cent
Copyright 1923
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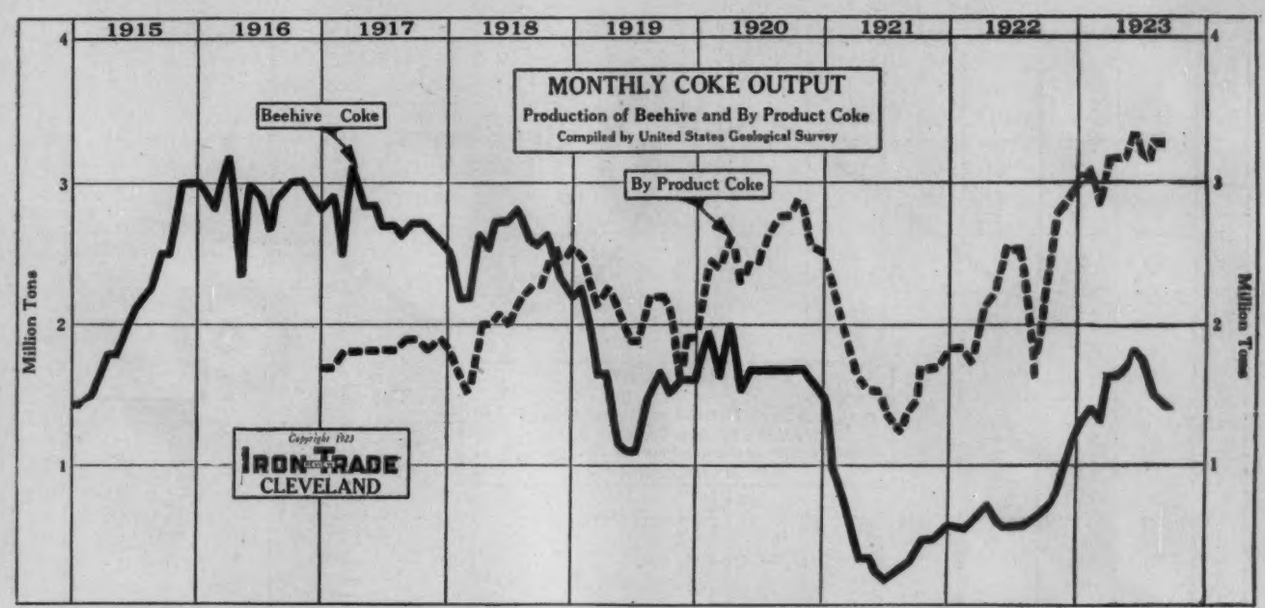
INDEPENDENT SHEET SITUATION
Monthly Production and Stocks Reported by
The National Association of Sheet and Tin Plate
Manufacturers in Per Cent of Capacity
Production Represents About
Two Thirds of the Country's Capacity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MONTHLY COKE OUTPUT
Production of Beehive and By Product Coke
Compiled by United States Geological Survey
Beehive Coke
By Product Coke
Million Tons
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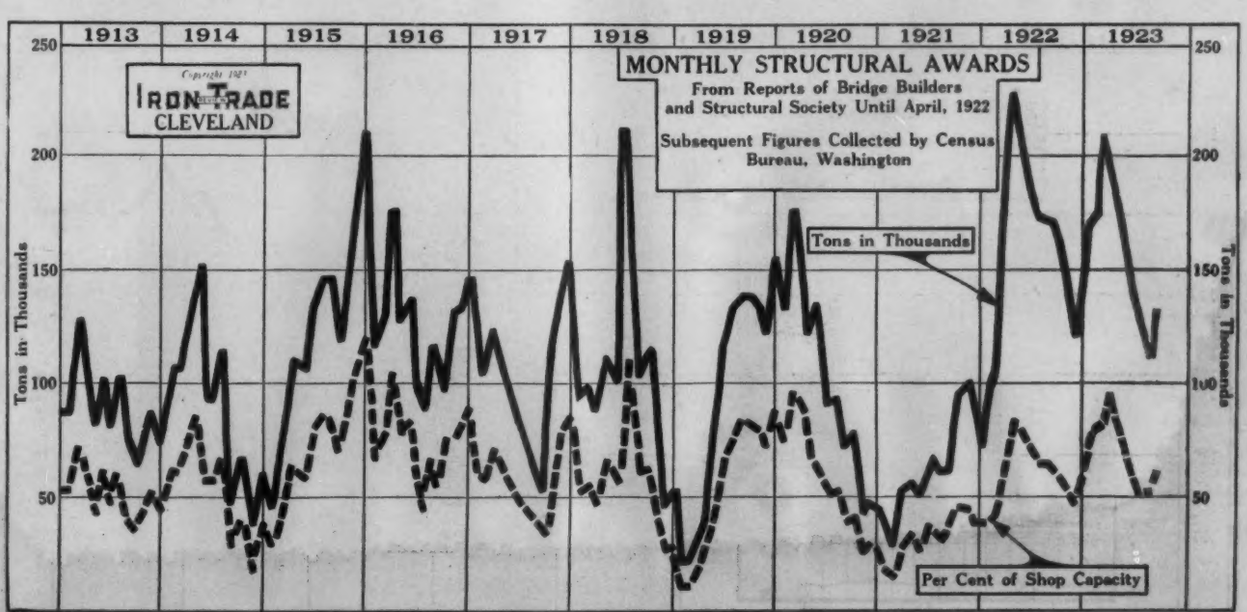
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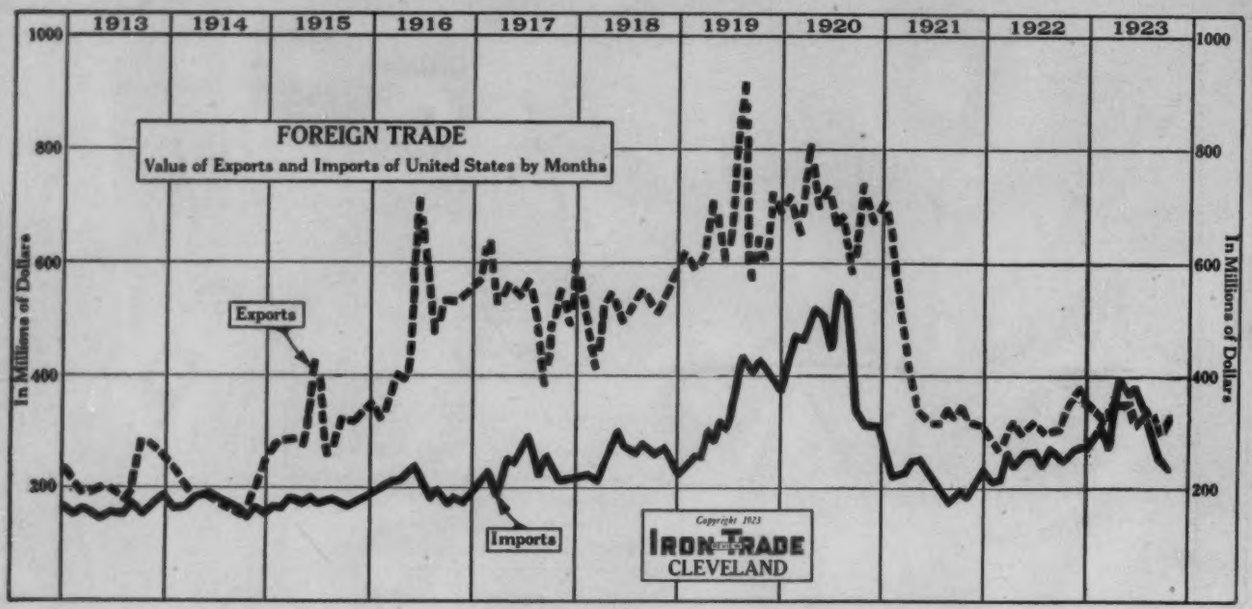
MONTHLY STRUCTURAL AWARDS
From Reports of Bridge Builders
and Structural Society Until April, 1922
Subsequent Figures Collected by Census
Bureau, Washington
Tons in Thousands
Tons in Thousands
Per Cent of Shop Capacity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FOREIGN TRADE
Value of Exports and Imports of United States by Months
In Millions of Dollars
Exports
Imports
Copyright 1923
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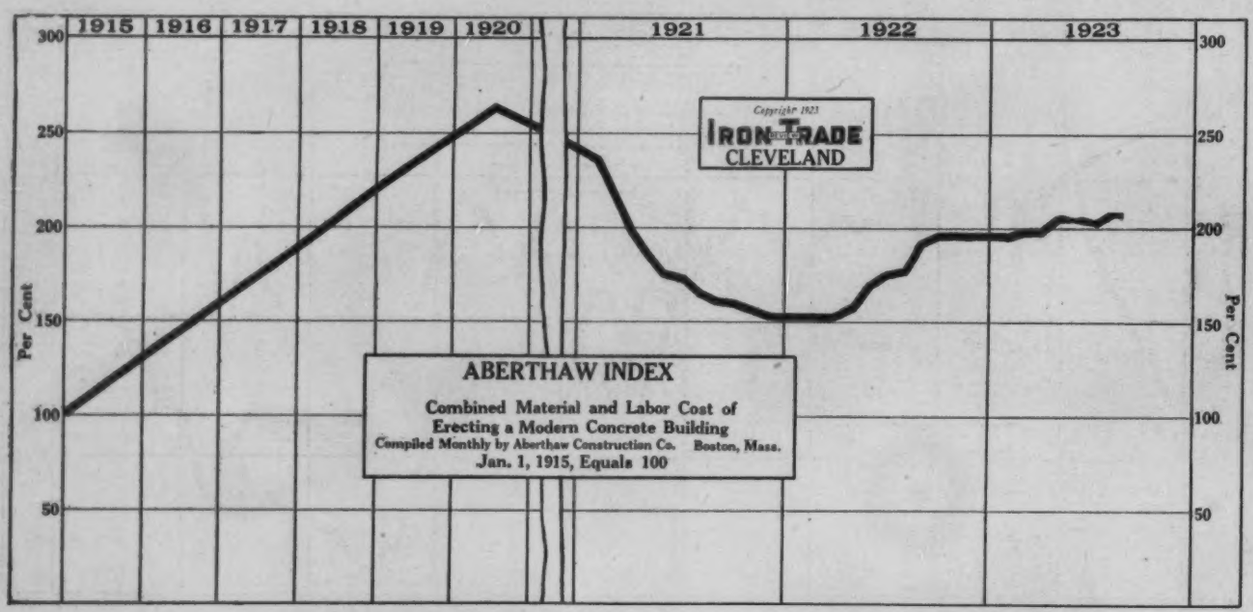
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Per Cent
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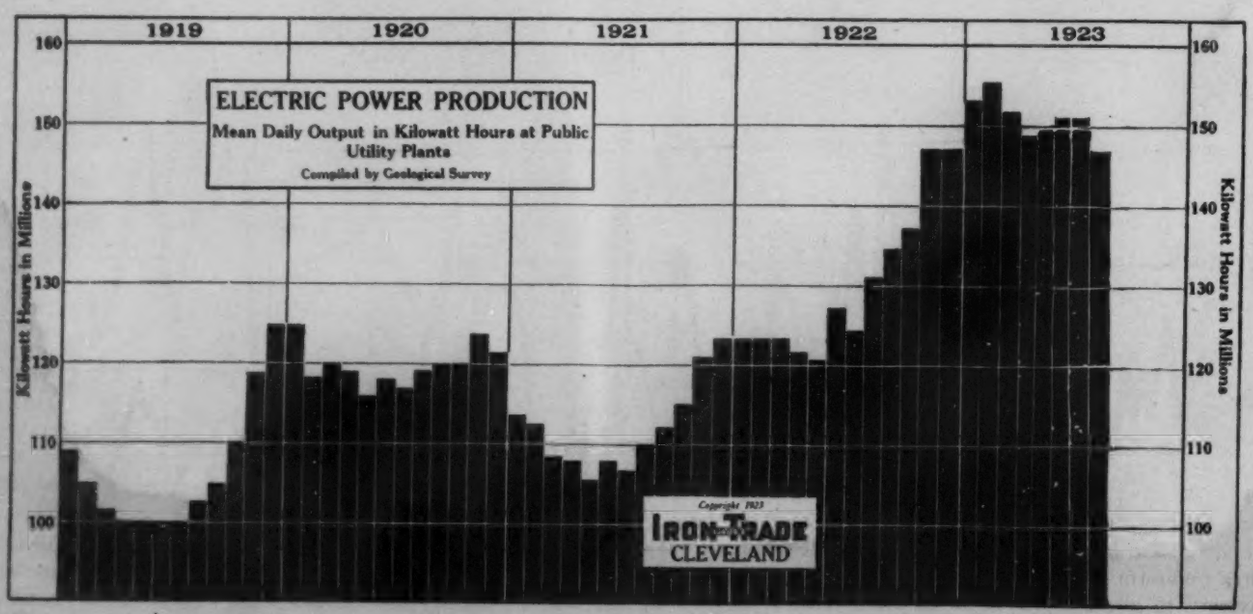
ABERTHAW INDEX
Combined Material and Labor Cost of
Erecting a Modern Concrete Building
Compiled Monthly by Aberthaw Construction Co. Boston, Mass.
Jan. 1, 1915, Equals 100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Kilowatt Hours in Millions
ELECTRIC POWER PRODUCTION
Mean Daily Output in Kilowatt Hours at Public
Utility Plants
Compiled by Geological Survey
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Casting Iron Pipe Centrifugally

Rotating Chill Molds Are Used To Form Bell and Spigot Type Cast Iron Pipe—Core Required for Bell End Only—Mixture of High Silicon Content Is Used—Product Is Annealed

BY E. C. KREUTZBERG

The author is associate editor at New York of IRON TRADE REVIEW.

CASTING iron pipe by the new deLavaud centrifugal process now is a standard production method used by the United States Cast Iron Pipe & Foundry Co. A year ago, after conducting extensive experimental work at its Burlington, N. J., plant, which put the new process on a commercial production basis the company installed four centrifugal machines at Birmingham, Ala. Their performance has fulfilled all expectations as to the efficiency, practicability and economy of the new process. Production of pipe per man by the deLavaud process is said to be 100 to 150 per cent greater than by the sand-cast method formerly used. The United States company now is making arrangements to expand the present battery to include a fifth machine and to install a second battery of five machines at Birmingham, as well as to install a 10-machine plant at Burlington. This will make a total of 20 machines in service in the shops of this company. Further, the National Cast Iron Pipe Co., Birmingham, also is about to install five centrifugal machines. By the new process, the iron flasks and core bars, the sand and clay, and the hay, straw or shredded wood rope used in making cast iron pipe are eliminated. In the deLavaud process the pipe is cast in a revolving steel cylindrical mold, the interior surface of which corresponds in every detail with the exterior of the pipe to be cast. Molten iron is poured through a spout extending through to the end of the mold, and as the iron begins to flow the cylinder develops two motions. One is a revolving motion, by which the iron is distributed centrifugally against the inner circumference. The other is a longitudinal movement, by which the mold is drawn back, permitting the end of the spout to deliver molten metal along the inner surface of the revolving mold until the spout emerges from the end at which it entered.

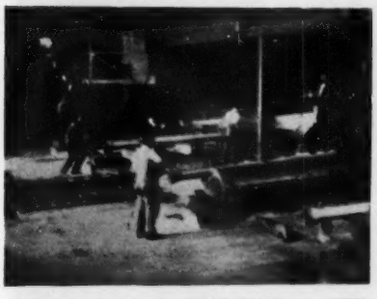


FIG. 1—BEFORE STARTING, A SUPPLY OF CORES FOR THE BELL ENDS ARE SUPPLIED NEAR THE MACHINE

In addition to the great increase in the output per man, a saving in the metal is effected. By the sand-cast method, shift in the position of the core at times causes one side of the pipe wall to be thinner than intended and the other side correspondingly thicker. For this reason, it has been customary in sand-cast pipe to allow 1/8 inch greater wall thickness than would be required if the section were uniform throughout. No core is used in the deLavaud process since casting pipe centrifugally assures uniform wall thickness. Therefore, it is unnecessary to allow excess metal to compensate for variation. By the former method, it was customary in a 6-inch pipe for ordinary pressure to allow a wall thickness of 0.48 inch, subject to 1/8-inch variation. In the centrifugally-cast product designed for the same pressure, the metal is 0.35 inch thick for the 6-inch size, and the thickness increases approximately 0.03 to 0.04 inch for each succeeding size. The saving in tonnage as a result of the decreased wall thickness is about 25 per cent. A 6-inch sand-cast pipe for instance, weighs 400 pounds, whereas a 6-inch pipe made in the permanent mold weighs 300 pounds. While the saving in tonnage is 25 per cent, the saving in the cost of the metal is slightly less, inasmuch as it is customary at present to cast the deLavaude pipe with pig iron higher in silicon that is used in sand casting.

The average analysis of the iron used in the centrifugal pipe is given as follows: Silicon, 2.50; sulphur, 0.06 to 0.07; manganese, 0.60, approximately, and phosphorus, 0.70 to 0.80 per cent.

The deLavaud centrifugal casting machine comprises parts having three main functions. In addition, to the steel cylinder which constitutes the mold, the driving and cooling system and the pouring mechanism are essential features. The ends of the steel cylinder or mold revolve in bearings supported in the ends of a hollow, cast iron cylindrical jacket, shown at *A*, Fig. 6. This jacket is about 30 inches in outside diameter for the 4, 6 and 8-inch pipe and somewhat larger for the 10 and 12-inch sizes. The space between the outside of the mold and the inside of the jacket is given over to the cooling water and driving unit. The latter is a Pelton water wheel, which is attached to the bell end of the mold shown in the foreground. The water which drives the Pelton wheel, thus revolving the mold, also cools this end of the mold. A cast iron partition divides the Pelton wheel space away from the remainder of the jacket. The latter receives its supply of cooling water independently through a pipe located along the bottom of the main body of the jacket and which is perforated at regular intervals so as to permit uniform distribution of the water. The mold rests upon four roller bearings which are built up on the bottom of the cast iron jacket. By reason of these roller bearings and because the mold virtually floats in the water contained in the jacket, the revolving motion of the mold is smooth and free from vibration.

FIG 2—EACH CORE IS HELD IN A METAL BLOCK KEYED TO THE MOLD AND ROTATES WITH IT

In addition to the revolving motion of the mold in the water jacket, the entire machine has a longitudinal motion to and from the pouring ladle. The longitudinal motion is accomplished by a hydraulic ram which moves the

machine back and forth along its rails. The ram is built in two parts with telescope, so that its length continually adjusts itself to the travel of the machine. The movement of this ram is controlled by valves located near the tilting ladle. Incidentally, the pipe which supplies water for actuating the Pelton wheel is passed through the interior of the ram. This pipe, as well as the external pipe which feeds into the cooling jacket, telescopes in the same manner as the ram. Among the requirements in taking care of these machines, therefore, is the necessity for numerous water-tight packings.

Because the machines are operated hydraulically throughout, considerable attention has been paid to the water supply and pressure. The Pelton wheel and the ram are driven by water under pressure which is supplied through an accumulator designed to give a constant pressure. The cooling water which passes through the main body of the water jacket is maintained at a lower head. Each machine is provided with a thermometer and a vacuum gage. The thermometer shows the temperature and the gage the pressure of the cooling water.

The pouring mechanism for each machine consists of a tilting ladle, a cast iron spillway and a long cantilever trough which terminates in the pouring spout. The tilting ladle is governed by a hydraulic cylinder, with needle valve control which may be adjusted to any required tilting speed. Thus, the flow of iron may be regulated in accordance with the requirements of the pipe being poured. A little more iron than needed is placed in the tilting ladle before each cast. After the pipe has been cast, the surplus iron is poured off into a pig mold as it is too cold to be used in the next cast. This procedure may be noted at *B*, Fig. 6. These pigs are collected each day and remelted in the cupolas. From the tilting ladle, the iron flows down the spillway into the trough. The latter is sufficiently long to extend horizontally through the mold, so that pouring is started at the bell end and as the mold is drawn away, metal is distributed over the entire length.

Each machine is supported on a concrete foundation, and is inclined somewhat from the horizontal, the upper or spigot end of the machine being slightly higher than the lower, or bell end. When the pipe is about to be poured, the machine is advanced the limit of its travel in the direction of the pouring ladle. In this position, the pouring spout is at the bell end of the mold as was noted. Inasmuch as the pipe is cast centrifugally, if some means were not used to hollow out the bell end, a surplus of metal would flow into this end, resulting in a bell of the correct outside contour, but with the inner surface the same diameter as the inside of the pipe. A sand core is inserted in the bell end of the mold, held in place by clamps to form the

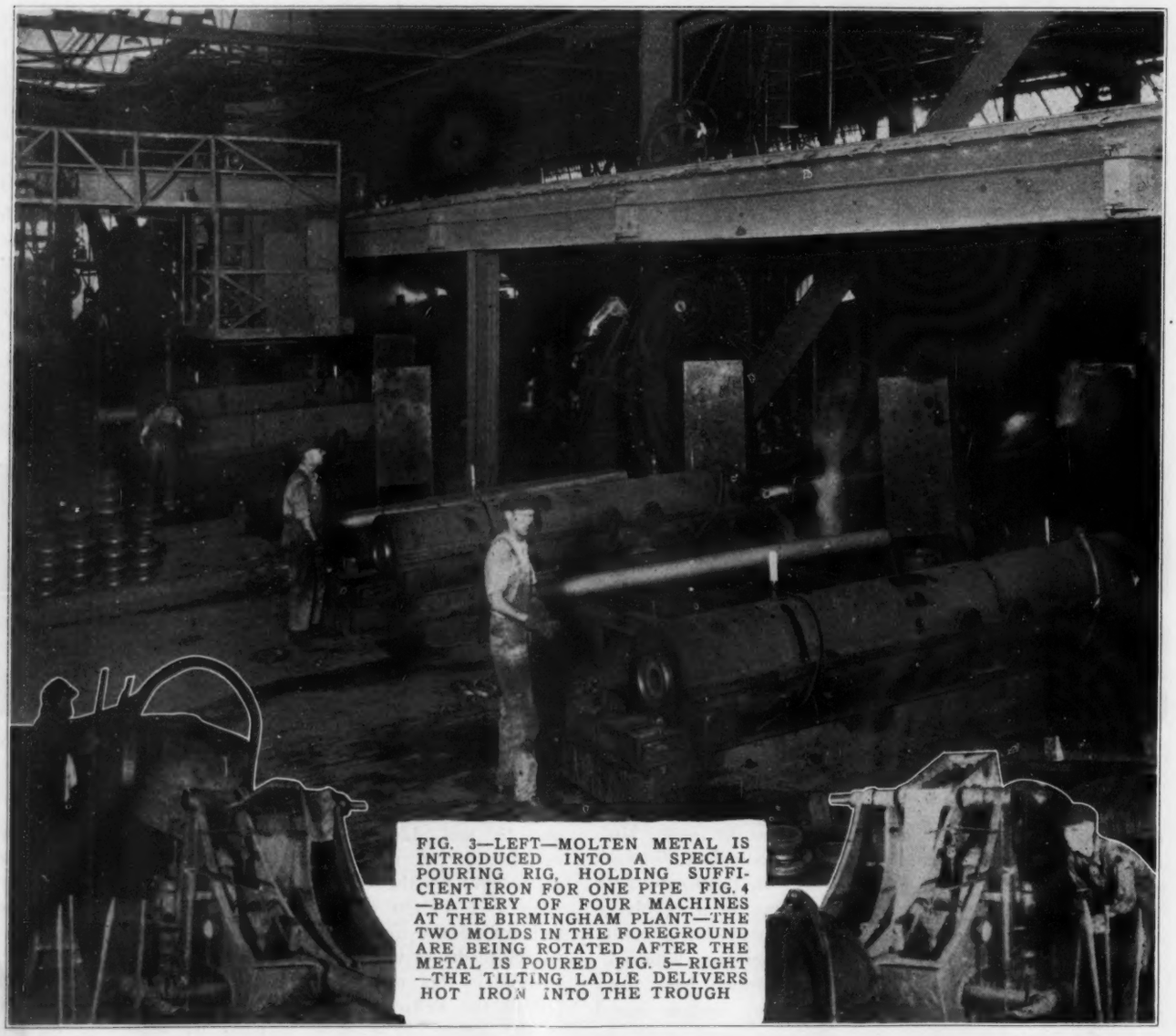


FIG. 3—LEFT—MOLTEN METAL IS INTRODUCED INTO A SPECIAL POURING RIG, HOLDING SUFFICIENT IRON FOR ONE PIPE FIG. 4—BATTERY OF FOUR MACHINES AT THE BIRMINGHAM PLANT—THE TWO MOLDS IN THE FOREGROUND ARE BEING ROTATED AFTER THE METAL IS POURED FIG. 5—RIGHT—THE TILTING LADLE DELIVERS HOT IRON INTO THE TROUGH

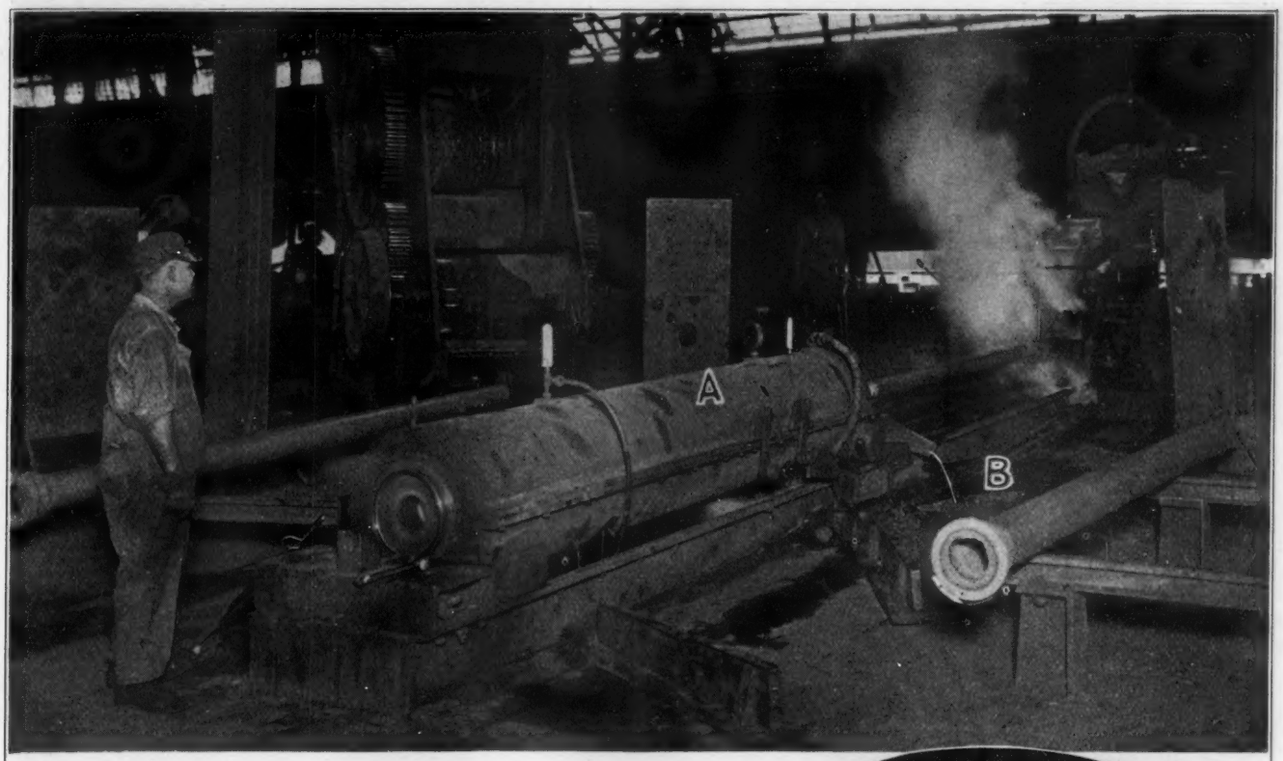
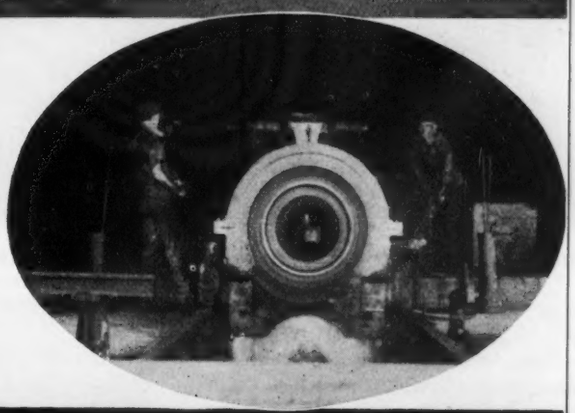
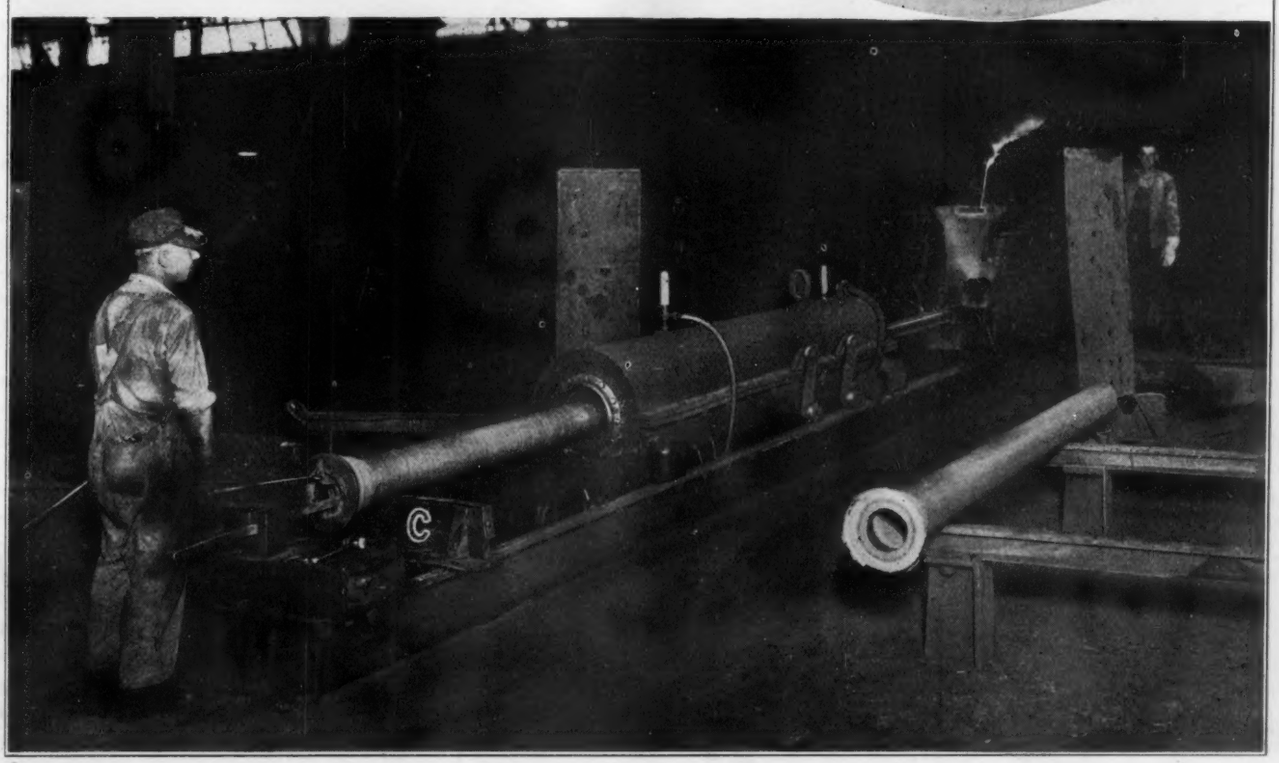


FIG. 6—ABOVE—FINISH OF THE POURING OPERATION ON A 6-INCH MACHINE—THE MOLD IS BEING ROTATED AS THE METAL SOLIDIFIES, WHILE THE EXCESS FROM THE POURING TROUGH IS PIGGED FIG. 7—BELOW—PIPE IS WITHDRAWN BY MOVING THE MOLD TOWARD THE BASIN, THE BELL BEING GRIPPED AND HELD TO A FIRMLY ANCHORED BLOCK FIG. 8—INSET—ROTATION IS STARTED AS THE METAL ENTERS THE POURING TROUGH





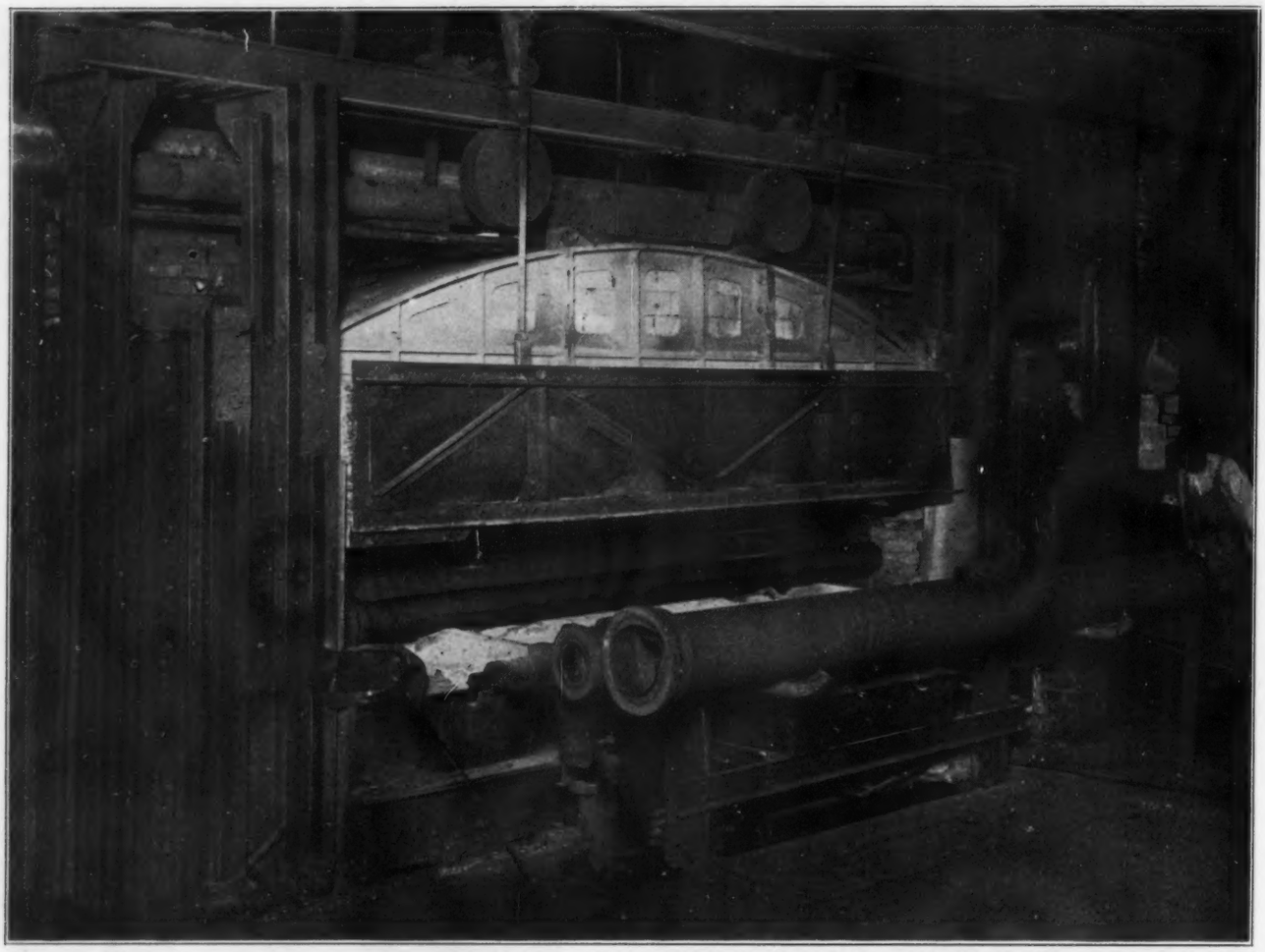


FIG. 9—AFTER REMOVAL FROM THE MACHINE AND BEFORE THEY COOL, THE PIPE ARE ANNEALED—A SCALE AT THE FRONT OF THE ANNEALING FURNACE CHECKS THE WEIGHT AND ASSURES THAT CORRECTIONS CAN BE MADE AT ONCE IN EVENT OF VARIATION FROM THE ESTABLISHED STANDARD

hollow bell. As the iron enters the mold, the latter is revolved at the proper speed and the mold moved away from the pouring ladle at a uniform speed, until the entire length has been poured. When the machine reaches its limit of travel in this direction, a tackle is thrust into the newly cast pipe. This securely grips the interior of the pipe as shown at *C*, Fig. 7, and when the motion of the machine is reversed, withdraws the pipe from the mold. Steel shod wooden supports are placed beneath the pipe to support it as it is withdrawn from the centrifugal mold.

As previously stated, three movements must synchronize so that the machine may function properly. These are the tilting speed which regulates the flow of iron from the ladle, the time of travel of the mold away from the ladle end of the machine and the number of revolutions per minute of the mold. These various speeds differ for each size of pipe, but the tilting speed and the longitudinal movement of the machine are based upon the number of revolutions of the mold per minute. By changing these speeds, the changes in wall thickness of the pipe are effected.

The present battery of four de Lavaud machines is arranged in a row, the machines being parallel to each other, as shown in Fig. 4. All batteries to be built in the future will be arranged in the same way. Two of the existing machines produce 5 and 6-inch pipe, and the two others, 8, 10 and 12-inch. The fifth machine, which will complete this battery, will produce 6-inch sizes. Later the company will produce larger sizes by the deLavaud method.

The upper end of the deLavaud floor is served by two cranes, one jib and one monorail. The jib crane serves the molten iron from the cupolas in bottom pour ladles. The ladles then are transferred by the monorail crane to the tilting ladle at the head of each machine. One crane serves the lower end of the floor, removing the pipe to the annealing department as rapidly as they are withdrawn from the machines. After the fifth machine has been added to the present battery and a second floor of five machines installed, a total of three cranes will be so located as to serve the lower ends of the two floors.

A crew of four men is required to operate each machine. However, the company also maintains a small crew of relief men owing to the continuous nature of the work.

Scrap loss by the centrifugal process averages well under 5 per cent of the pipe cast. Much of this loss is occasioned from the use of sand cores which are necessary at the bell end of the pipe.

Inasmuch as the pipe is cast in a chill mold, it must be annealed before it is ready for service. One furnace constitutes the present annealing equipment. This has capacity for annealing 15 tons or about 65 pipe an hour, which is about 20 to 25 per cent less than the output of the four machines. Therefore, it is necessary to have a night gang anneal part of the production. Work already has been started on the construction of a second annealing furnace and the two furnaces together will anneal the

pipe produced by the contemplated plant of 10 centrifugal machines. Annealing simultaneously with the production is desirable, for the heat in the newly produced pipes thus is conserved. In the annealing oven the temperature of the pipe is brought to 1750 degrees Fahr. While at this temperature, they are kept revolving to keep them from bending. After having been brought to this temperature they are passed through a cooling chamber where the pipe also are kept revolving. Here the temperature is reduced to 600 degrees Fahr. after which the pipe are passed into the air.

An important feature of the annealing furnace is that it is equipped with a scale as shown in Fig. 9. Before the pipe are rolled into the furnace, they are weighed. If they are under weight or over weight, the machine operators immediately are informed so that they may adjust the peripheral and other speeds to obtain the desired wall thickness.

Centrifugally cast pipe is said to develop a high tensile strength, and to resist a high interior pressure. The standard specifications for 6-inch, class B pipe call for a wall thickness of 0.48 inch and a working pressure of 86 pounds per square inch. Specifications proposed for the centrifugally cast pipe require a wall thickness of 0.35 inch and the pipe is intended to resist an internal pressure of 150 pounds per square inch. The specifications also call for a Brinell hardness not to exceed 224, while laboratory tests have shown an average of 134 for the inside and 171 for the outside surface of the centrifugal product. The patents on the method are controlled by the Centrifugal Pipe Co., New York, and companies making this type pipe are operating on a royalty basis.

Exhibits Reflect Status of British Industries

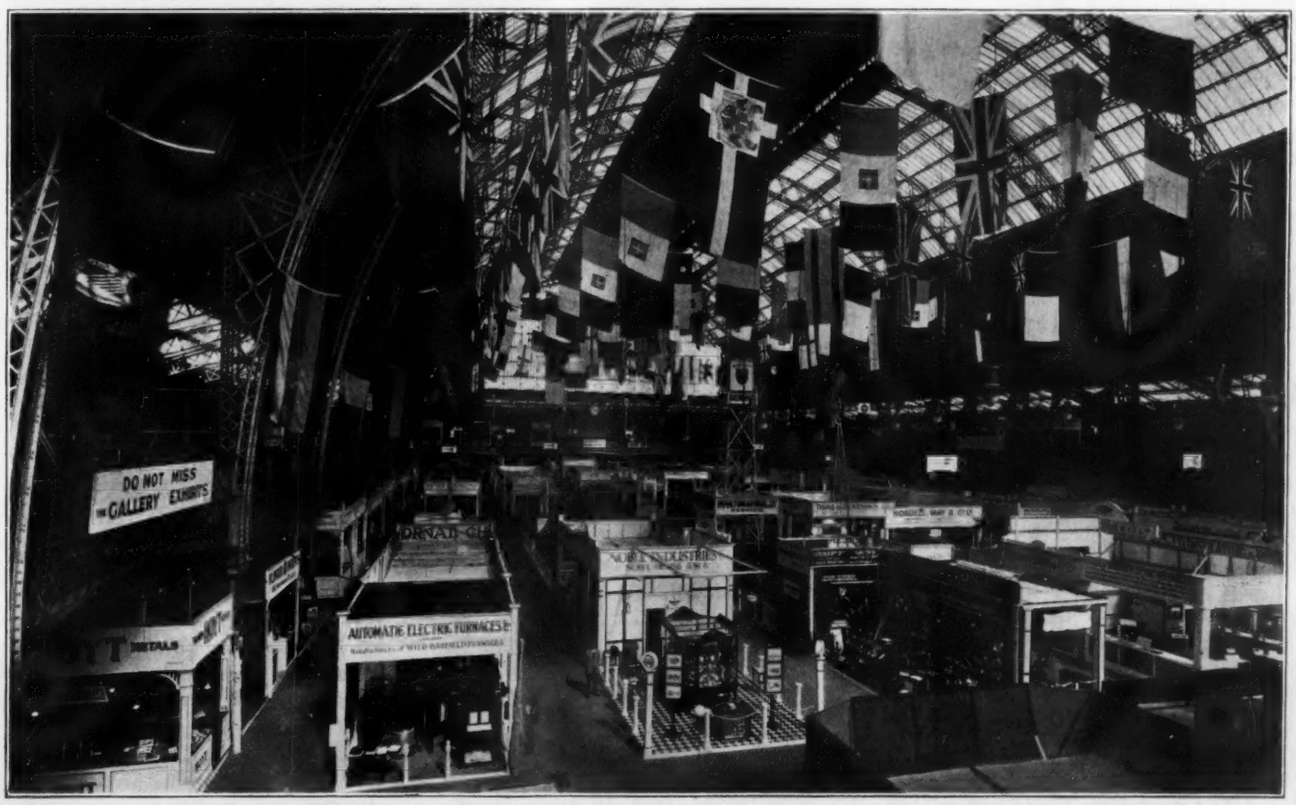
The present characteristics of the shipbuilding and other industries of Great Britain are faithfully reflected in the Shipbuilding, Shipping, and Machinery exhibition being held at Olympia hall, London. The exhibits differ considerably from those at the last show which was held two years ago. Many of the companies represented on the floor in the hall are displaying equipment only remotely concerned with shipping, this condition being attributed to the existing slump in the shipbuilding industry.

Taken collectively, the exposition emphasizes the strong tendency toward economy which prevails in British industrial circles. A number of companies are demonstrating welding apparatus, principally oxyacetylene welding and cutting outfits. The use of this equipment in Great Britain has lagged far behind its widespread employment in America, owing to the fact that the British labor unions have insisted that when oxyacetylene apparatus is used, a large number of men stand idle in order to equalize the pay sheet. However, the fact that many contracts have gone to the continent because of this situation, is gradually breaking down the opposition of labor.

Another indication of the desire for economy is found in the several displays of cargo handling equipment for use on docks and on board ship. The Hesco Co., Kingsway, London, is exhibiting a number of trucks and cranes for handling materials to and from ships.

Modern mining equipment also is shown, one of the most interesting booths being that of the Francois Cementation Co. where a new process for injecting cement at high pressure into water bearing strata is being demonstrated. The Chemical Engineering Co., Manchester, England, is showing models of its centrifugal pulverizing and blending mill. Many companies are exhibiting internal combustion engines, most of which indicate a desire on the part of the designers for greater simplicity and increased economy.

The Carnegie Steel Co. has authorized the expenditure of $1,800,000 for the construction of coal receiving docks at the company's plant at Mingo Junction, O.



VIEW OF ENGINEERING EXHIBITS AT SHIPBUILDING, SHIPPING AND MACHINERY EXHIBITION AT OLYMPIA HALL, KENSINGTON, LONDON

Reducing the Wear of Wire Rope

Short Life and Frequently Disaster Are the Result of Failure To Observe Certain Basic Principles—Size of Sheave Groove Is Important—Lubrication Must Be Thorough and of Proper Kind

BY WILLIAM CONSTABLE

WIRE rope is one of the most reliable of all structural materials, but it is also a sensitive and complex structure. Therefore, to obtain the most satisfactory results from wire rope, it is necessary to follow certain definite rules. If these rules are ignorantly or otherwise disregarded, short rope life and often disaster is the result. Hence, application of a few of the more important rules by the user towards the care of wire rope, will considerably reduce abuse and better rope life will result.

Ropes used for hoisting and haulage range in sizes anywhere from 1 to 2¾ inches diameter and lengths suitable to meet conditions. Drums used for hoisting and haulage purposes should be made of cast steel material whenever a cast iron drum shows wear, and as large in diameter as practicable. The use of a grooved drum is far better and more economical than a flat face drum. Where a flat face drum is used it is absolutely necessary that the first layer wind uniformly to guide the additional layers because the first layer of rope on the drum provides the groove for all additional layers. This can be aided greatly by using a steel starting piece to guide the first wrap of the first layer so that the rope may be wound on the drum in a true helix, otherwise the rope may wind in a wavy manner causing severe abrasion to the rope.

Care in Winding Required

When installing a new rope on a flat face drum, care should be taken not to hammer hard each additional wrap of idle rope against the adjacent wrap already on the drum, it is only necessary to tap with a light hammer and wooden block to bear against the adjacent wrap of rope. If this is done too forcibly it will reduce the pitch of the first layer by interlocking of the idle wraps of the first layer, and the second and additional layers of rope will be subject to severe abrasion due to close winding of the first layer. Furthermore, to avoid interlocking of ropes on installations winding only one layer on a small diameter straight face drum with a severe fleet angle existing, it is preferable to use a left lay rope when overwind rope winds from right to left and underwind rope winds from left to right. A right lay rope is preferable when the underwind rope winds from right to left and the overwind rope winds from left to right. There always should be at least three to four turns of dead rope left on a drum.

Where severe rope abrasion occurs at flanges when changing from one layer to another, or at other points due to the crossover, it is advisable to order a little reserve rope to permit the cutting off of the rope at the drum end at frequent intervals. Where not much reserve rope is provided on the drum and where the abuse is quite severe, requiring frequent cutting at the drum end, it has in some cases been found satisfactory to cut 30 inches at a time every three or four weeks. In other cases these need not be cut oftener than three or four months. This will depend upon the total rope life and the rapidity of rope wear on the drum.

As stated before a grooved drum is more economical and wherever feasible it is strongly recommended in preference to a flat face drum. Where a grooved drum is used and rope wound more than one layer, the pitch of the grooves should be not more nor less than ⅛ inch larger than the rope diameter; this will give an ideal winding condition of the first layer, if the fleet angle is not too great, and will permit a good groove condition for the second layer. If the pitch is too small it is apt to cause crowding or rubbing of one wrap of rope against the other and if a second or third layer is added on a close pitch groove drum, the additional layers of rope will be subject to severe abrasion. The grooves also should be made of a slightly larger radius than the rope so that the rope will not wedge or pinch in the groove.

Another advantage of a grooved drum is that the rope in the groove is given a continuous and far better support, hence the actual radial pressure of rope on drum becomes less and more uniform and not concentrated as when a flat face drum is used. It will be found that most of the latest high-speed hoist installations are using grooved drums. It is the general practice for the diameter of a drum to be not less than 60 times the rope diameter.

Sheave Machinery Is Important

The head sheave of a shaft hoist installation has a great bearing on the life of the rope and if they are not made of the proper material nor machined true and their upkeep is neglected, good rope service will not be secured. Sheaves generally are made of cast iron, cast steel, or manganese steel. If a cast iron sheave does not wear with any given rope tension, it will be satisfactory to use cast iron. If, however, the cast iron sheave wears so much as to influence the life of the rope a cast steel sheave should be used. If a cast steel sheave also wears so much that the length of life of the rope is materially shortened a manganese steel sheave should be used if other operating conditions permit.

It is necessary that head sheaves be machined true, round and in perfect balance if good rope service is to be secured. It also is important that the sheave be in alignment with the center line of the drum or if the drum is not entirely filled it should be in line with the center of that portion of the drum on which the rope winds, to decrease as much as possible the sheave flange wear which is caused by the rope fleeting back and forth across the drum. It is impossible to exercise too much care and attention to the prevention of side flange wear, for it is dangerous if a portion of the sheave flange cracks and breaks out, throwing the rope out of the sheave groove.

With high-speed hoists, the head sheaves should be as light as possible. Where a sheave of heavy section is used, there is a tendency for the ropes to slip on the sheave when the velocity of winding changes quickly. This will wear the rope severely. If sheaves become badly scored or the groove diameters are worn small from a rope which has been in service for a con-

From a paper presented at the Duluth meeting of the Lake Superior Mining institute, Aug. 29-31. The author is mechanical and electrical engineer, Republic Iron & Steel Co., Duluth.

siderable time, usually it is advisable to change the sheave or turn out the grooves before a new rope is installed, to insure the best condition for rope service in the future. A pinching groove condition should be avoided with a new rope as this results in a restriction of the rope rotation and the strand movement. The general practice is to have a groove diameter slightly larger than the rope diameter. The following groove diameters are recommended for new and remachined grooves:

Size of rope, inches	Sheave groove diameter, clearance, inches
¾-1¼	1/16
1 5/16-2½	⅛
2⅝ up	3/16

In regard to the proper diameter sheave for a certain size rope, the general practice is to figure it at 72 times the rope diameter; however 80 times the rope diameter would be better.

The fleet angle is the maximum angle formed by a line running through the center line of the head sheave at right angles with the center line of the drum and a line running from the center of the head sheave to the center line of the outermost wrap of rope on the drum. This angle should be kept as small as possible. The permissible fleet angle for shaft hoists is stated by some authorities as a maximum of 1½ degrees, but others allow 2 degrees as a maximum. These values are governed by a number of conditions, for example, a 2-degree maximum fleet angle may be permissible for large diameter grooved drums, but without question where a small diameter straight-faced drum is used a maximum fleet angle of 1½ degrees is excessive. Too large a fleet angle results in an overlapping of the rope on the drum which should be avoided as it will mash, distort, and severely abrade the rope, causing a short rope life. Many ropes have been decreased in life from 30 to 50 per cent because of this condition. As the fleet angle is governed by many conditions, before installing a new equipment it would be advisable to submit all data to the rope engineer for his examination, study and suggestions from a wire rope viewpoint.

Poor Attachments Cause Fatigue

Where the rope is attached to a cage or skip it is most advisable to use a wire rope socket with zinc attachment, which attachment, when properly made, will develop the full strength of the rope. If a socket attachment is used it will be necessary to cut off the end of the rope at frequent intervals and resocket it again. This should be done at six equal intervals during the life of the rope and the rope should be cut anywhere from 2 to 20 feet depending upon the deterioration of the rope near the attachment. This is necessary because a rope running over a head sheave of a hoist is restricted in rotation due to the friction of the rope in the groove of the sheave. This accumulates an excess of twist in the rope at the socket. This accumulation of twist together with the constant vibration of the running rope, concentrating at the socket attachment, causes an additional fatiguing action in the steel wires which requires that this portion be cut off at frequent intervals. An additional length of rope should be ordered to meet the condition.

Where clips are used for an attachment it must be made certain that the U-bolt bears on the slack side of the rope. Otherwise a crimp is placed on the tension side of the rope, damaging it. The rope generally fails at this point. Care must be taken that a sufficient number of clips are used to hold the rope properly and the larger the rope diameter the greater is the number of clips required. Clips should be spaced so that the distance between center line of clips is equal to six times the rope diameter. It is important that the nuts be tightened up frequently when the rope is put into service, because the stretch of the rope reduces the holding power and may cause an accident. It is also considered advisable to reclip an attachment in case of resocketing. Where the clip attachment is used, it is advisable to use a solid thimble so that the pin hole may be offset from the center line of the thimble, a distance equal to one-half the rope diameter. This permits the pull of the rope to come in direct line with the bear of the pin.

In shaft hoist or haulage work, if a shutdown becomes necessary, the rope should not hang in the shaft or lie out on the slope, but both skips or cages should be brought to the surface with the rope wound on the engine drums so that if thoroughly lubricated they will be protected from deterioration.

In inclined haulage work a good track equipment is essential. Care should be taken regarding the true alignment of sheaves and track rollers. These should be well lubricated so that the rope may ride with the least possible friction. Rollers often stop or freeze fast and though made of softer material will cause wear on the rope. Knuckle sheaves should be located at points where change of direction of rope is such that the length of the arc of contact is six times the rope diameter or more. The knuckle sheave diameter should be not less than 48 times the rope diameter for 6 x 19 construction, nor 84 times for 6 x 7 construction and should be equipped with properly machined grooves.

Abrasion and rubbing of rope on an incline haulage should be avoided by the proper installation of rollers. Considering the rollers on a uniform grade, it is found economical to use the widemouth type of track roller which should be not less than 6 times the rope diameter and they should be spaced 25 to 30 feet part. If it is found that this system of track equipment wears down quickly, it may be necessary to install steel sheaves.

In both hoisting and haulage work it is important to avoid high accelerating stresses. On the surface, it may not appear dangerous to the wire structure, but if the comparison were made of the microstructure of the steel before and after such stressing, a visible change would be perceptible. It is by far the wisest plan to apply the load gradually so that the rope may not be subjected to sudden stresses which have a great bearing on the life of a rope.

Overloading Should Be Avoided

Overloading a wire rope is also detrimental toward good rope life and should be avoided and guarded against. The safety factor should not be less than that specified in the wire rope catalogs and for short lengths of rope the safety factor should be increased.

Shovels are being largely used for dry land excavation, for railroad, canal or irrigation work. A good many of the most modern shovels today use wire rope exclusively for digging in place of the chain which formerly was considered indispensable. Ropes for this class of service range in sizes from ¾-inch diameter for boom ropes up to 2⅛-inch diameter for main hoist ropes, as used on one of the largest types.

When installing a new rope on a shovel care should be taken not to damage the rope in any way or to cause it to become kinked, for any abuse incurred by a shovel rope during installation may cause an early failure. After removing an old rope, and before installing the new one, all the sheaves should be examined carefully and the groove diameters checked accurately to see that they have not been worn small nor scored by the

old rope. A sheave groove which has been worn down to the diameter of the worn rope, a size which is generally less than the diameter of the new rope will cause a pinching action on the new rope resulting in its becoming damaged severely in the first few days of operation. It would be much cheaper to remachine the worn groove to the proper groove diameter or to replace the sheave before installing the new rope.

Rubbing of the rope on the steel structure of the boom should be eliminated by installing guide rollers. Where such rollers are installed the bearings must be kept well greased so that they will always be free to revolve. If this is neglected and rollers become fast, the continual rubbing of the rope over them will severely wear it and shorten its life. Precautions should be taken against sudden heavy digging stresses as the normal load stresses run high in this class of work. Furthermore, a good operator will avoid reckless handling which is apt to impart severe damage to the ropes. The rope should wind uniformly on the drum to avoid the piling up of the rope on the drum in one place, as this will mash and abrade the rope and greatly reduce its life. It is also important, where possible, to have the drum of sufficient diameter and length so that the rope may wind upon it in one layer.

Rope Construction Is Complex

As stated before, a wire rope is a mechanism of somewhat complex construction and its original efficiency can only be retained as a unit when it is not distorted. In the manufacture of wire rope great care is exercised to twist the wire in the strands and the strands in the rope under uniform tension. Therefore, it is important that the ends of a wire rope are properly secured with the proper number of wire seizings. If the ends are not properly secured, the original relation of tension, as manufactured will be disturbed and the maximum service will not be secured due to the fact that some strands are carrying the greater portion of the load.

When cutting steel wire rope, it is essential to place three sets of seizings on each side of the cut to prevent disturbing the uniformity of the rope. Annealed iron wire should be used for seizing purposes.

When installing a piece of wire rope it is not probable that any one would intentionally mishandle it, nevertheless, a word of caution should be given. In the first place, a wire rope should not be handled as a manila rope for it is different structurally. It must not be uncoiled as a hemp rope. A wire rope received in a coil should be unrolled on the ground like a hoop and straightened out before attempting to pass it around the sheaves. Where long lengths of rope are shipped on reels, the reels should be jacked up on a shaft at a point convenient to the installation and allowed to unwind slowly until the entire length of rope has been installed. Kinking a rope when installing it should be avoided for if a rope is kinked during installation it is almost certain to fail in service at that point.

When handling a Lang lay rope, never wind directly from the reel or coil to the drum. Lay out rope in full length if possible or set the reel or coil as far from the drum as possible. A Lang lay rope is more springy than a regular lay and should be carefully installed and where possible the tension on the rope always should be kept the same.

Functions of Lubrication

Lubrication of a wire rope is highly important as it performs two necessary functions; that is, to reduce internal and surface friction and to prevent corrosion. Ropes being operated in vapors or fumes, or in water must be lubricated thoroughly to prevent corrosion. There is not much value in a lubricant which will run easily and drip from the rope. The ideal lubricant is one which will not harden upon exposure nor at low temperatures and which can be made thin enough to penetrate. Therefore, a lubricant applied hot will generally give good service because in its heated condition it will penetrate and then upon cooling will congeal into a plastic filler throughout the rope.

A wire rope operating over sheaves must be well lubricated because it is subjected to considerable internal friction and in order to overcome this friction the lubrication must be such that it will work in between the wires of the strands thus permitting the wires to be free to adjust themselves to all degrees of bending.

Wherever a spliced eye, clip or clamp connection is used, it is necessary to use a wire rope thimble, around which the rope is passed to protect it from becoming mashed and distorted when strain is applied to the rope. Reverse bending is the passing of a rope over one sheave in one direction and over a second sheave in the opposite direction, so that the two bends are diametrically opposite. This is an exceedingly severe condition of rope service and its use should be avoided wherever possible. The use of a reversed bend will wear out a wire rope more rapidly than straight bending. The result of a reverse bend is similar to taking a sample of wire and bending it backward and forward until it breaks at the point of bending. It is surprising how few reverse bends are required to cause failure, therefore, where a wire rope is subject to similar reverse bends short rope life will result.

The author is indebted to one of the leading rope manufacturers for valuable information used in the preparation of this paper.

Canada's Silica Resources Little Exploited

The department of mines, Canada, has published a 125-page report on the occurrence, exploitation and uses of silica. The area embraced in the report is that part of Canada which is within easy transportation distance from the main centers of industry between the Atlantic seaboard and Fort William, Ont. Only a small portion of Canada's silica resources are exploited; it is estimated that 67 per cent of the amount used is imported.

A general description of the various forms of occurrence of natural silica includes such varieties as vein quartz, sandstone, silica sand, diatomaceous earth, tripoli, etc. The structural and geological features of the deposits are discussed and a stratigraphic section of one district is given. Silica has many industrial uses such as in the manufacturing of ferrosilicon and carborundum, and as molding, building and brickmaking sands. A diagrammatic sketch of a silica brick plant and several photographs of plants, quarries, and deposits which are actually producing, are shown.

Laboratory tests such as screen and chemical analyses, and washing tests were made and the results tabulated. The samples were taken from all districts which seemed to be potential producers and these districts were mapped according to the deposits. The report is concluded by a discussion on proving and operating and an estimate of the capacity and cost of a plant. Photographs and sketches used in the experiments are shown.

As an addition to its extensive series of industrial motion picture films, the bureau of mines, Washington, announces a three-reel film entitled "The Story of the Motor Truck." Close-up views are shown of molding and forging operations and the machining of various parts.

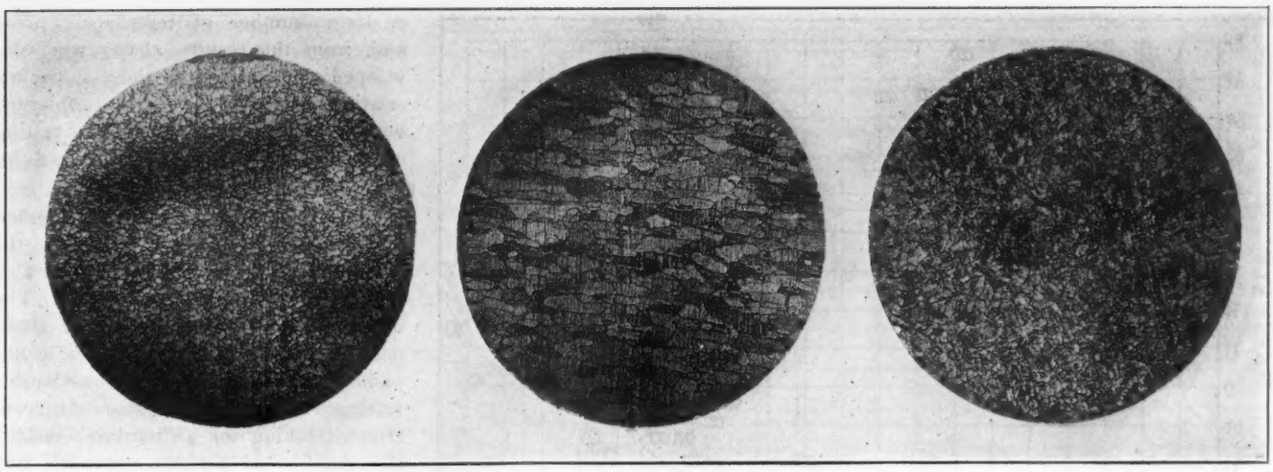


FIG. 1 (LEFT)—TEST STRIP NO. 275 OF 20-GAGE MATERIAL. X 95. FIG. 2 (CENTER)—TEST STRIP NO. 163, WHICH ROUGHENED ON DRAW. X 95. FIG. 3 (RIGHT)—TEST STRIP NO. 160. X 95

Selecting Material for Drawing

Sheet and Strip Steel for Making Formed and Drawn Parts Must Be Tested for Stability—Suggested Test Method on Ductility Machine Is Based Upon Hardness Factor and Depth at Breaking Point

BY L. N. BROWN

DURING the last few years the use of sheet and strip metal has increased rapidly and manufacturers have been called upon for an ever-increasing tonnage, better drawing quality, and better surface. The automobile industry probably is the most insistent in striving for a better product and reduced costs. Confronted by these demands, the mills have directed their efforts toward the delivery of material. Their personnel has been occupied largely with the problems incident to production, as any increase forced the use of new sources of raw material. These problems, combined with those met in the daily routine, have demanded immediate attention, with the result that the standardizing of heat treatments, quality, or temper, etc., have been neglected.

Considerable work in standardizing has been done by many companies, but no acceptable method has been developed. The following method, therefore, is given with the hope that some method that can be accepted by the manufacturers and users may be developed. The problem of selecting a material with such properties that the losses in processing are a minimum is interesting and difficult. A description of the properties required is likewise difficult, largely because of loose terms. Another handicap is the number of methods of testing which have not been standardized and concerning which little information is available.

In the selection of drawing or forming stock, it is advisable to eliminate as many variables as possible; consequently the method of testing the material is of the utmost importance. The method should be rapid and comparatively easy of application, as it is more important that a large percentage of the stock be tested with reasonable accuracy than that a small

From a paper presented at the Quebec, Can., meeting of the American Institute of Mining and Metallurgical Engineers, Aug. 20-30. The author is in the Inspection division, Maxwell Motor Corp., Birmingham, Mich.

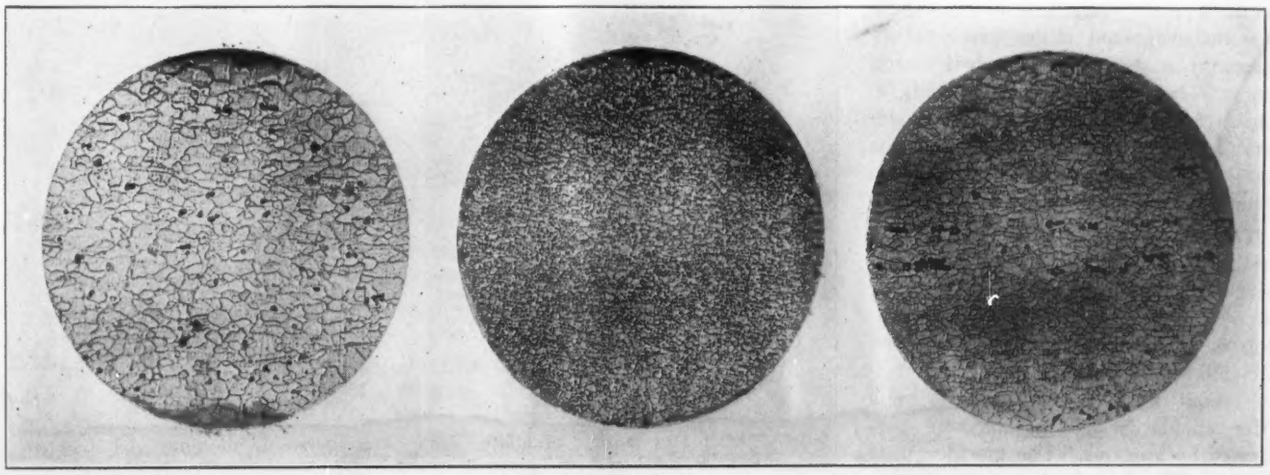


FIG. 4 (LEFT)—TEST STRIP NO. 220. X 95. FIG. 5 (CENTER)—TEST STRIP NO. 237. X 95. FIG. 6 (RIGHT)—TEST STRIP No. 222. X 95

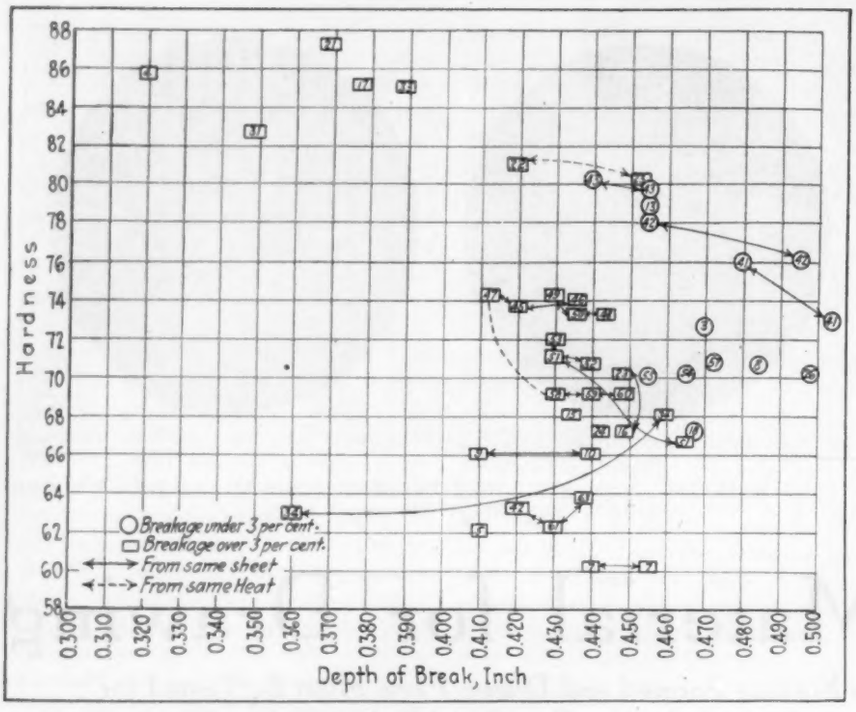


FIG. 7—RESULTS OF TESTS OF 20-GAGE MATERIAL RECEIVED FOR ONE PART DURING ONE YEAR

percentage be tested by a more accurate method. It is necessary to consider the process by which the material is made and samples must be selected with care and must be representative, as a great variation is liable to exist in any shipment. The results of the tests of material received during one year for one part are shown, graphically, in Fig. 7. A print of the part to be made was sent with the purchase orders in each case.

Various Methods Are Used

Some plants have found it advantageous to use one class of material and, by processing, have been able to produce certain results. Another plant may work on less expensive material but produce the same result by varying the method of handling. A third plant may use more expensive material than either and produce comparable results with less hand work. The equipment, space, and facilities for handling are important factors and the ultimate choice may be governed by any one of about a dozen elements.

The method here described shows one plan of attack that has been satisfactory in so far as it gives a quick, fairly accurate check. The manipulation is simple, the first cost low, and the upkeep not excessive. The testing requires no special training, and after standards are set may be performed by any one. The machine used is the Olsen type ductility machine with pressure gage attachment. In principle, a plunger is pressed into the stock, which is held between two dies. The depth of impression is shown by a dial micrometer and the pressure exerted is indicated by a pressure gage. The apparatus is subject to some criticism but seemed to offer the best possibilities at the time the work was started.

Inasmuch as that property vaguely called "hardness" is indicative, in a general way, of certain physical properties, it was thought that if a method for measuring the hardness with this machine could be devised, it would aid greatly in solving the problem. A large number of tests were made and, from the results, charts were developed that seemed to show a marked relation between the results obtained with the standard hardness testing machines and the results obtained by the method described later.

On 16-gage material and under, where the 7/8-inch ball is used, the machine seemed to have considerable advantage for obvious reasons. The method of operation is a slight modification of one used by several companies that have done considerable testing with the machine. It consists of taking for a "hardness factor" the number of pounds per 0.001-inch at a depth of 0.250 inch. This is obtained by dividing the reading on the pressure gage at a depth of 0.050 inch by the thickness of the stock, in thousandths of an inch. One of the reasons for using this figure instead of the direct reading obtained is that a correction is necessary for variation in gage in order that results may be comparable. To get complete data, pressure readings were taken and recorded at 0.300, 0.350, 0.400 inches, etc., as well as the depth and pressure reading at the point of rupture. The hardness factor and "depth" at rupture will be discussed later.

Factors Affecting Suitability

The suitability of a material usually depends on: (1) Percentage of breakage on drawn jobs or defectives on formed jobs; (2) freedom from graining or roughness; (3) freedom from cross wrinkles, stretcher strains, etc.; (4) variation in gage. The surface finish must be considered to a certain degree. The result desired is

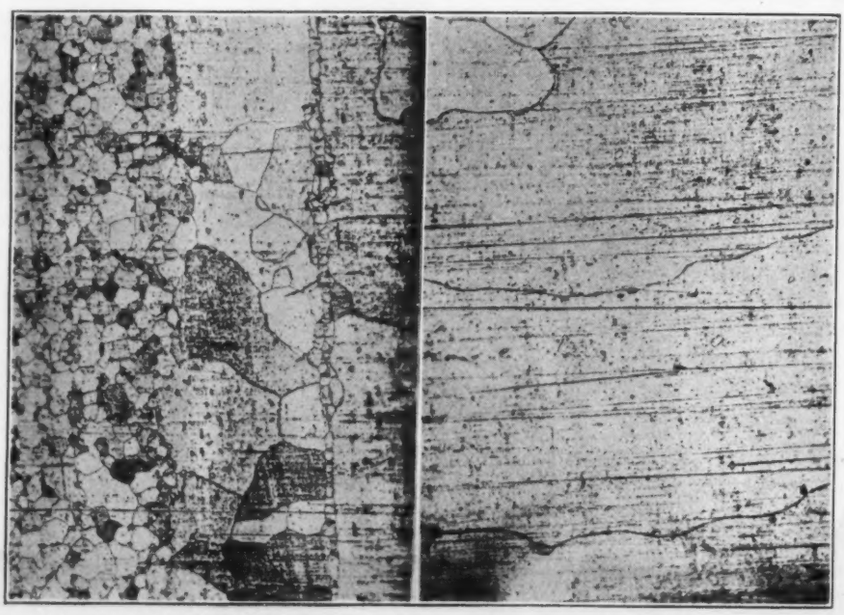


FIG. 8 (LEFT)—TEST STRIP NO. 34A. X 105. FIG. 9 (RIGHT)—TEST STRIP NO. 34B. X 105

a finished piece free from breaks and objectionable surface defects caused by processing. With so-called hot-rolled or blue annealed material, the breakage and gage variations are the important requisites, the others becoming important as material of higher finish is used.

Hardness Best Index

To simplify the problem somewhat, the discussion will be limited to blue annealed material, or stock of that character where the finish is comparatively unimportant. Just as the hardness values to a considerable degree are indicative of the other physical properties of heat treated stock, the hardness factor is an indication of the other physical properties of the material under discussion. A percentage hardness inspection, small or total, presupposes many things such as correct analysis, homogenity, uniformity of handling, etc. Hardness probably is the best practical index we have, at present, when the history of the part in question is known, namely, analysis, heat treatment, etc. As the history of this class of material is somewhat shrouded, the test must be carried to destruction after the hardness factor is derived, in order to obtain necessary information regarding workability.

The results of the tests of extra deep drawing material received during a year for two rather difficult parts are shown in Fig. 12. The numbers given are the numbers of the test pieces. Circles around a number indicate that the total breakage on the lot represented by that test piece was less than 3 per cent; the numbers are placed inside rectangles when the loss is over 3 per cent. Lines connecting two numbers indicate that **both samples** are from the same sheet or strip. For example, the two tests marked "34" were from the same test piece and, in this case, were taken within 10 inches of each other; the breakage was 100 per cent on a small lot. Tests 58, 59 and 60 were strips from a sheet of the same heat number as tests 45, 46 and 47, which were samples from a different sheet. These show uneven annealing. On the run of this lot of over 5000 pieces, the breakage was about 18 per cent. The breakage on the lot represented by tests 48, 49 and 50 was 4.6 per cent on a run of 1100; this lot was bought in an emergency as deep drawing only.

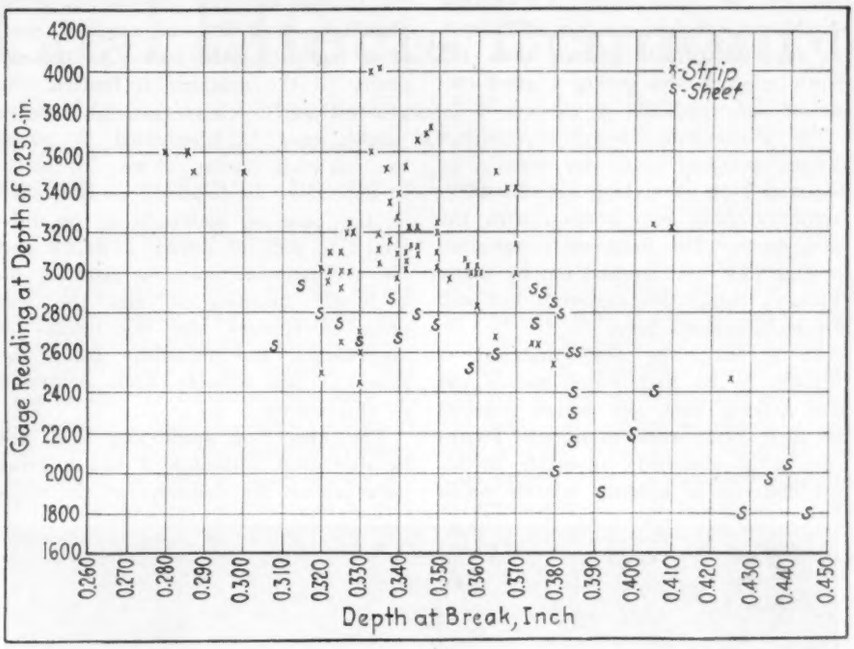


FIG. 12—RESULTS OF TESTS OF 16-GAGE, BLUE ANNEALED AND BOX ANNEALED MATERIAL RECEIVED FOR TWO PARTS DURING ONE YEAR

The reason so many bad samples are shown on the chart is that we were attempting to establish limits and carefully investigated all excessive breakage. The good samples represent a much greater tonnage. The limits necessary are easily discernible.

Full Finished Stock Roughens

One of the peculiarities of certain grades of full finished stock is its tendency to "roughen" or "grain" when subjected to a comparatively deep draw. This is a bad condition as it necessitates a snagging, or polishing operation. Dies are not designed to draw equally all over and the contrast of "rough" and "smooth" areas is noticeable after japanning. It was found desirable to determine, roughly, if any depth of impression on the testing machine was comparable to the maximum effect of the presses under regular operation. Long strips were cut from one side of a sheet and impressions made with the testing machine at depths of 0.100, 0.125, 0.150 inch, etc. A part was then drawn from the other half of the sheet. The character of the surface of the stamping at its roughest area was compared with the various impressions and the one determined whose surface was most nearly like it. This was repeated with several kinds of material. It could then be quite definitely stated

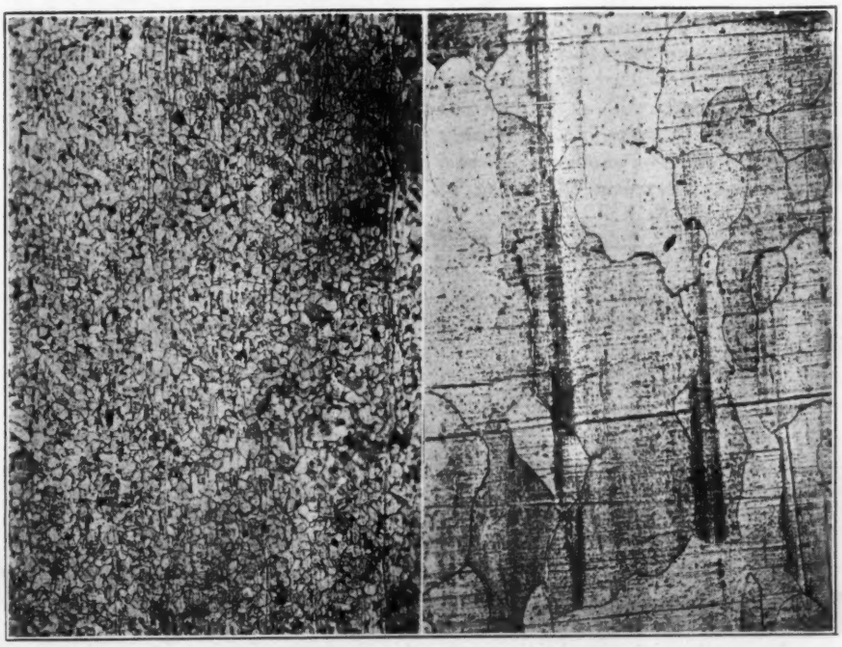


FIG. 10 (LEFT)—TEST STRIP NO. 61 OF 16-GAGE MATERIAL. X 105. FIG. 11 (RIGHT)—TEST STRIP NO. 5 OF 16-GAGE MATERIAL. X 105

that to be satisfactory a material should not roughen on test at a depth of, say, 0.050 inch greater than the depth selected, this giving a good factor of safety.

The phenomena known as stretcher strains, wrinkles, etc., can usually be discounted by observing the hardness factor carefully in conection with the total depth. The permissible variation in gage has been worked out by many concerns using this material, but will not be discussed here.

At present, the best material is thought to be that which makes the best looking part and which requires the least hand work to finish. Therefore, it is frequently advisable to select material of slightly inferior finish but which will draw better than material with a higher finish. It is possible, however, to get both surface and temper for drawing or forming.

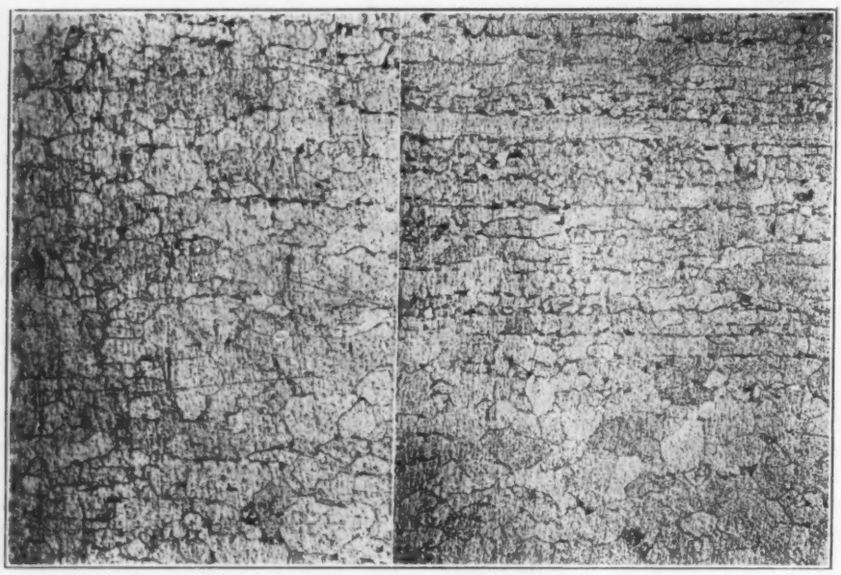


FIG. 13 (LEFT)—TEST STRIP NO. 181. X 150. FIG. 14 (RIGHT)—TEST STRIP NO. 159. X 105

Can Determine Workability

By making a number of tests on the machine with carefully selected samples, parts of the same sheet or strip being run on the presses at a time when there is no breakage, and closely observing the finished part, limits can be established. These limits are comparable with the customary manner of setting those with a Brinell or Shore machine on heat-treated material. By this, we mean that by testing the material which works satisfactorily and that which does not work, we can decide the workability of a lot closely without trying on the press. It is more difficult than setting limits with a Brinell machine at the present time as the factor of safety is not considered.

For testing material over 16 gage, the ½-inch ball and corresponding die should be used and the reading taken at a depth of 0.150 inch. As the capacity of the machine is limited, the greatest part of the material causing trouble may be eliminated by using the hardness factor alone. In order to determine as definitely as is needed in the case of materials to be subjected to difficult draws, a punch and die arrangement may be installed on a tensile machine to run the test piece to rupture and the limits set accordingly, the procedure being the same as has already been described in this article.

The effect of grain size will not be discussed, although it has a great influence on the character of the manufactured product. To get good results with microscopic analysis alone, expensive equipment is necessary, together with experienced operators and good supervision. As a method of checking other results, it is probably unequaled. The photomicrographs, Figs. 8 and 9, explain the cause of the peculiar results shown in Fig. 12. It is much more difficult to explain the failure of test piece No. 61 from the photomicrograph alone, Fig. 10. It is easy to explain the breakage of the parts made from Fig. 11, which is also 16 gage. It is likewise difficult to explain a breakage of over 80 per cent on test piece No. 275 from the photomicrograph alone; this latter was 20-gage material.

The reason No. 163 roughened more than test piece No. 160 on the draw for the same job may easily be accounted for from Figs. 2 and 3. Nos. 220, 237 and 222, Figs. 4, 5 and 6, were for another job, one being rough, one good, and one breaking. However, it appears from testing light gage material that the greater field for the use of the microscope is with the producers. It is as essential that heavy gage material be run to destruction as it is that light gage should be, if no other inspection methods are employed; Figs. 13 and 14 show what may be expected. Material No. 181, Fig. 13 worked satisfactorily with no breakage while the breakage was extremely high with the other two stocks.

We have endeavored to explain the method we have found the most satisfactory; that is, for light gage material a combination of hardness tests and determining the depth at rupture; for heavy gage, hardness tests and either testing to destruction with a heavy type machine or examination of structure with microscope. The information as to the limits found necessary is to be furnished to the sources of the material with the request that such material for those jobs be shipped as will work satisfactorily.

Increase in Sheet Trade Shown for August

Conditions in the sheet industry were greatly improved in August over July, as shown by the data compiled and issued by the National Association of Sheet and Tin Plate Manufacturers. Sales increased from 34.5 per cent in July to 39.9 per cent in August, or 5.4 per cent. Production increased 14.8 per cent from 65.3 to 80.1 per cent; shipments were 8.4 per cent greater, going from 71.8 per cent in July to 80.2 per cent in August. Unfilled tonnage on hand dropped from 151.2 per cent Aug. 2 to 108.4 per cent Sept. 1. Finished stock on hand awaiting shipment fell off from 40.7 per cent Aug. 1 to 35 per cent Sept. 1, while stock unsold remained about the same, 11.9 per cent Aug. 1 and 11 per cent Sept. 1. Detailed tonnage figures follow:

	Net tons Aug., 1923	Per cent to capacity	Net tons July, 1923	Per cent to capacity
Total sales for month	116,659	39.9	92,358	34.5
Total production.	234,112	80.1	174,910	65.3
Total shipments.	234,486	80.2	192,261	71.8
Unfilled tonnage as at Sept. 1 and Aug. 1....	316,972	108.4	404,868	151.2
Finished stock on hand awaiting shipment	102,354	35.0	109,068	40.7
In stock, unsold	32,252	11.0	32,062	11.9

The number of hot mills in the United States is 668, having a capacity for August, 1923 of approximately 420,000 net tons. The percentage of the capacity to which the figures shown above are related is 69.5 per cent.

Storage of Coal Effects Economy

Purchasing of Supplies During Summer Months Would Provide a Better Grade of Fuel at Lower Cost—Using Modern Methods, Cost of Handling to and from Storage Is Low

BY RUSSELL B. WILLIAMS

IN 1903 anthracite coal retailed in Chicago for $5.00 a ton. Today its cost is $16 to $17 a ton. The freight item alone is $5.24, or 24 cents greater than the retail price 20 years ago. In spite of this radical advance in price neither the mine operators nor the railroads are making as much, on capital or turnover, as they did during previous years.

Normally the months of April and May see the freight tonnage of the country at low ebb. Thus far this year there has been little or no downward trend in the tonnage curve, the traffic being 20 per cent greater than the traffic of a similar period in any previous normal year. Yet with all this extra burden on the railroads during these months, the coal industry has operated in accordance with past experience—about 30 per cent of capacity. Taking the country's transportation systems as a whole, their general efficiency from December to March is about 75 per cent of what it is during the summer. If freight business continues in proportion with the volume done during the first six months of this year there will be a demand for 1,250,000 cars a week during the coming winter months; the rush starting in December.

Given a normal winter with only the usual periods of extreme cold and the ordinary amount of snow, this enormous traffic will not permit the railroads to operate at 75 per cent efficiency. Their general ability will be greatly reduced—the car shortage more acute. Last year, coal constituted 18.7 per cent of the country's freight traffic. Under the present system of buying coal we demand that our railroads move the bulk of this coal during five months of the year, placing a burden of nearly 200,000 cars per week on the railroads at just the time they are operating at low efficiency and at a time when other products, such as grain and fruit, need rolling stock. On the basis of these facts the question arises as to why consumers possessing even modest facilities for storage, wait until actual need is felt, before ordering. Briefly, there are five good reasons why consumers of coal should buy their supply in the summer. These reasons are: 1. Financial advantage; 2. assurance of coal; 3. better quality of coal; 4. lowering the retail and wholesale prices of coal; 5. relieving the nation's transportation ssytems and helping stabilize a billion dollar industry that, for decades, has been a source of constant trouble between labor and capital. Of these five reasons, four are purely individual and personal. In short, coal storage means more money in the consumers' pockets and more heat in his firebox. The first is a financial advantage. The variation in price of all grades of coal between July and January, of course, is affected greatly by labor and local condition. However, summer and winter prices over a period of 10 years have shown a fluctuation of about 20 per cent in favor of summer.

Considering these facts and annual coal consumption, it is a simple matter to calculate the gross saving by summer purchases of coal. The net saving can be determined by the subtraction of such items as interest on investment, rental value of storage space, depreciating the value of the coal 1 per cent because of degradation, etc. Each consumer has an individual set of figures and for that reason no attempt will be made to establish an average consumer. It is sufficient to say that the gross saving on 1000 tons of mine-run selling at the mine during the summer for $3 would sell during the winter at $3.50 or $3.75, the saving being about $600.

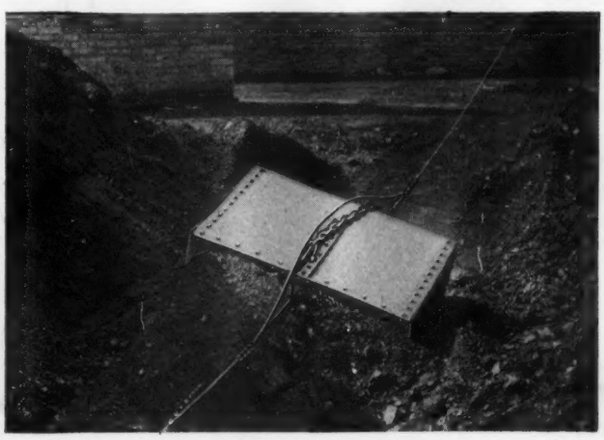


FIG. 1—RECLAIMING COAL FROM STORAGE BY MEANS OF A POWER HOE

With many companies the chief reason for storing coal is the fact that once coal is in storage—they have it. It is a matter of insurance against possible shutdowns, loss of production and sales, for, with car loadings averaging a million a week, the orders being 25 per cent greater, there is little assurance of getting a car when it is needed. Often this insurance is worth far more than all the trouble, interest, depreciation and other expenses combined.

Mention was made above of "mine-run." There is of course no quality to be considered with this class of coal. However, where lump of other prepared coal is purchased the difference in coal quality between summer and winter production is marked. During the warm weather and period of light demand, mines have ample time to prepare coal fully. Washing, picking, sizing and other processes are carried forward as they should be and the finished product is in every way up to standard. Winter sees the mine rushed with orders. Under such circumstances it is almost impossible to maintain the same high standard of coal that exists during summer. This often means more to the consumer than is realized. Poorly prepared coal contains slate, bone and other elements that contribute largely to the ash content. And the greater the ash content, the more expensive the heat obtained.

Elimination of the seasonal element will stabilize the coal industry, improve preparation, aid production and help distribution. This bettered business practice reflects itself in prices, not only favorably to the consumer but to the miner, the operator and all concerned. Readers of this article probably cannot remember the time when the two factions, labor and capital in the coal industry were not quarreling. The mining industry always has been the one outstanding industry that apparently has been utterly incapable of negotiating satisfactorily with its labor. The public has been largely to blame for this condition. It has allowed one of the country's greatest industries to remain seasonal. It has forced coal dealers to handle ice in the summer and

The author is connected with the advertising department, Link-Belt Co., Chicago.

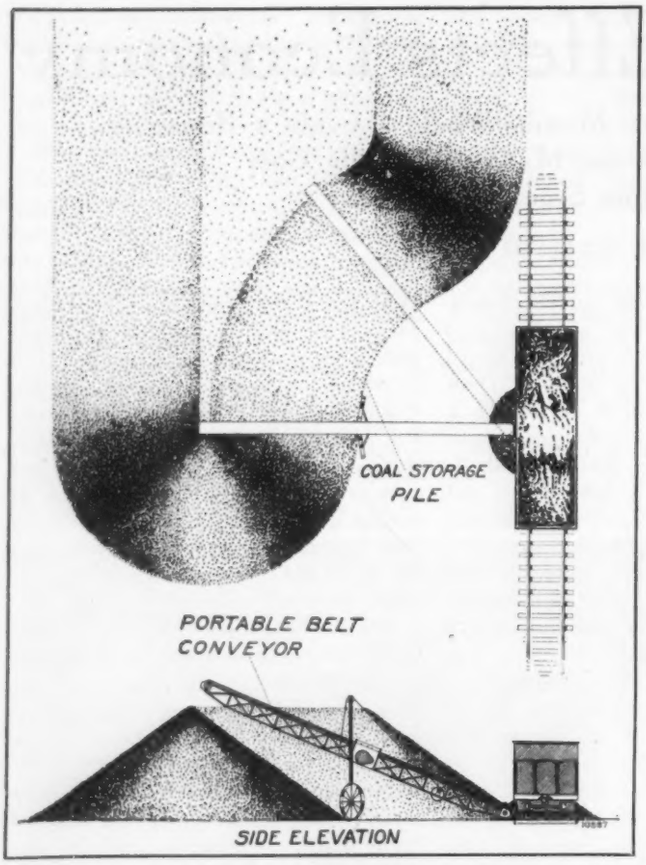


FIG. 2—SKETCH SHOWING METHOD OF HANDLING COAL FROM CARS TO THE STORAGE PILE. THE ARC SHOWN IN THE SIDE ELEVATION IS 36 FEET LONG AND HAS A CAPACITY OF ABOUT 70 TONS WHEN PILED TO A HEIGHT OF 8 FEET

the mines to shut down. This unhealthful condition has tended to keep alive the misunderstandings between the worker and the employer. Let coal be mined regularly, eight hours a day, 300 days in the year, and but little of the labor difficulties will remain in evidence after the first year.

Storage of coal with the average industrial user largely is a matter of facilities. Because of this, there are factories that find it impossible to store coal. We are prone to look at big examples in everything, however, forgetting the smaller and more ordinary things. Perhaps because of this habit, those who are in a position to store coal hesitate doing so because of the erroneous belief that large investments and complex systems must be made. For that reason instances of the more modest means are given here to show their practicability and to point out the economy almost every executive can effect for his company.

Handling Costs Are Reduced

A manufacturing company in Pennsylvania uses about 4500 tons of mine-run bituminous coal each year and has plenty of ground space on which coal can be spread out. It keeps several hundred tons on hand. During the war this company found that it was costing about 35 cents a ton to unload, pile and reclaim coal. They felt this cost to be entirely out of proportion to its value and began an investigation of a system of coal storage that would prove more economical. Finally, it was decided to install a 31-foot portable belt conveyor which would pile coal 13 feet, 6 inches high when set at an angle of 30 degrees. Fig. 2 shows the type of conveyor installed when set for a height of 8 feet. The machine was made to pivot, enabling it to serve an arc about 36 feet long with a minimum handling ofthe machine. The system installed saved 57 per cent of the handling costs. Another simple and inexpensive way to handle stored coal is that of employing the power hoe or drag scraper. Fig. 1 shows a typical installation of the power hoe. The coal is received in railroad cars, dumped into a portable belt conveyor which discharges it to the initial pile alongside of the railroad track. The hoe is moved to and fro by a steel cable, the ends of which are fastened to driving drums in the operator's house, which is so arranged to give a clear view of the storage pile. The cable passes around sheaves so located as to serve the storage yard. Thus the hoe or drag scraper takes the coal away from the initial pile, placing it on that portion of the storage pile which can more easily bear additional tonnage. The empty hoe rides on top of the coal until it returns to the initial pile and the cycle of operation is repeated.

When reclaiming from storage, the hoe's attachment to the cable is reversed, thus moving the coal in the opposite direction. Where conditions permit the combination of power hoe and portable belt conveyor may be used.

Those having doubt as to spontaneous combustion, the libility of loss of calorific value, deterioration, or other elements that would tend to make the summer storage of coal of questionable benefit will find a most complete discussion of such questions in technical paper No. 16, published by the United States bureau of mines, 1912.

Sponsors Short Courses on Heat Treating

Short course on "Steel and Its Treatment" will be offered in 20 Indiana cities during the coming year by the engineering extension service of Purdue university, Lafayette, Ind. Last year classes were offered in South Bend and Ft. Wayne. It is planned to organize three classes at South Bend under the direction of the Central Junior high school, the Oliver Plow Works and the Studebaker Corp. These organizations sponsored classes last year. A class has been approved for the Haskell-Barker plant of the Pullman Co., Michigan City, and a special class is being organized in cooperation with the Gary public schools.

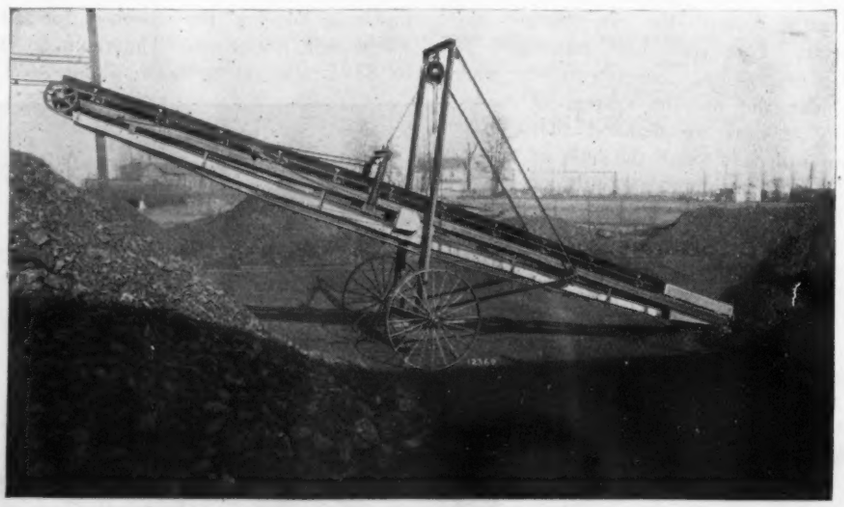


FIG. 3—31-FOOT PORTABLE BELT CONVEYOR USED FOR HANDLING BITUMINOUS COAL FROM CARS TO STORAGE PILE

Classes also will be started at Ft. Wayne, Logansport, Peru, Wabash, Marion, Muncie, Anderson and Richmond. The courses offered will consist of six meetings covering the manufacture, hardening and tempering of steel. Prof. John F. Keller, of the Purdue university engineering extension staff, will conduct the classes. He also will assist industries in cities where the classes are being organized. The engineering extension work is under the supervision of Professor Knapp, assistant director of engineering extension service. Professor Keller is field man.

Electrify Plate Mill in Buffalo Plant

The Bethlehem Steel Co. has ordered from the Westinghouse Electric & Mfg. Co. electrical equipment to replace a steam drive for a 30 x 48-inch universal plate mill in its Lackawanna plant at Buffalo. This is the second reversing mill equipment ordered for the Lackawanna plant and is part of an extensive electrification program which was undertaken a short time ago.

The apparatus in the order includes: one direct current reversing mill motor operating at 75 to 150 revolutions per minute in either direction; one flywheel motor-generator set consisting of a 4000-horsepower wound rotor induction motor, two 2100-kilowatt, 700-volt direct current generators, and one 100,000-pound cast steel flywheel; auxiliary equipment consisting of a 3-unit exciter set to supply excitation for the reversing mill motor and the generator of the flywheel set, and ventilating apparatus for ventilating the main equipment; and switchboard and complete automatic control equipment.

Would Revise Grading of Export Iron

LONDON, Sept. 5.—In conjunction with the visit of the American Foundrymen's association to England, a movement has been started to revise the grading of British pig iron for export. As already reported by cable, negotiations in connection with this question are being conducted by Walter Wood, R. D. Wood & Co., Philadelphia, and Dr. Richard Moldenke, Watchung, N. J. Mr. Wood acting in an official capacity as vice chairman of the American Society for Testing Materials committee A-3 on cast iron, of which committee Dr. Moldenke is also a member. Mr. Wood and Dr. Moldenke are also acting informally for the American Foundrymen's association under the advice of the president, G. H. Clamer.

As previously reported a circular recommending the proposed classification is being distributed to leading British manufacturers of pig iron through the agency of the National Federation of Iron and Steel Manufacturers. This proposed classification, of course, has no reference to the grading of British pig iron for the domestic market, but it is believed that should it be adopted for export it would facilitate the sale of British pig iron in the United States. Details of the proposed classification as submitted by the American Society for Testing Materials are as follows:

In the year 1906, the American Society for Testing Materials found it desirable to frame recommendations for the supply of pig iron on analysis, in view of a pressing need that had developed. In 1913, the International Association for Testing Materials framed proposals to extend the above practice so that it would be applicable to international trade. In 1923, the convention of the American Society for Testing Materials framed a carefully made revision of the specifications of 1906, which corresponds to the American practice that has developed during the intervening years. The cast-iron division of that society has empowered its officers to present the following for discussion before the ironmasters of Great Britain and the Continent:

I—Manufacture

The pig iron shall clean, as free as possible from an excessive amount of dross and sand, and may be either sand or machine cast.

II—Chemical Properties

(a) The pig iron shall conform to the chemical requirements specified by the purchaser at the time of purchase, with the following permissible variations from the specified percentages in the case of pig iron intended for the manufacture of gray iron castings: Silicon, 0.25 above and below; sulphur, not over specified percentage; phosphorus, 0.15 above and below; manganese, 0.20 above and below; and total carbon, not less than specified percentage.

(b) In the case of pig iron for making steel, malleable iron or special castings, a maximum percentage of phosphorus and either a maximum or minimum percentage of manganese may be specified.

III—Sampling and Analysis

(a) In sampling, each car load (or its equivalent) shall be considered as a unit.

(b) One pig shall be taken to every four tons in the car, and they shall be chosen from different parts of the car as to secure, as nearly as possible, a sample representing the average quality of the iron.

(c) The pigs thus taken shall be sampled by drilling, so as to fairly represent the composition of the pigs as cast.

(d) An equal weight of the drillings from each pig shall be thoroughly mixed to make up the sample for analysis.

IV—Inspection and Rejection

In case of dispute, the sampling and analysis shall be made by an independent chemist, mutually agreed upon (if practicable, at the time the contract is made), whose decision shall be final. The cost of such resampling and reanalysis shall be borne by the party in error.

All pig iron which fails to conform to these specifications shall be subject to rejection.

Appendix

In using these specifications it is not advised that all five elements be specified in all contracts for pig iron, but it is recommended that, when these elements are specified, the following percentages be used, and for convenience the accompanying telegraph code is endorsed.

Illustration of the use of the coding: The word Li-se-ca-mo-pi indicates: Silicon 2.00, sulphur 0.05, carbon 3.00, manganese 0.80, phosphorus 0.60, with variations as allowed.

Percentages of any element specified half-way between the above shall be designated by the addition of the letter X to the next lower symbol.

Example: PeX indicates phosphorus 0.50, with allowed variation (0.15) up and down.

For American Society Testing Materials.

DR. RICHARD MOLDENKE,
WALTER WOOD,

To ARTHUR DORMAN, President,
National Federation Iron and Steel Manufacturers

Suggest Code For Pig Iron Analysis

SILICON		SULPHUR		TOT'L CARBON		MANGANESE		PHOSPHORUS	
Per cent	Code	Per cent	Code	Per cent	Code	Per cent	Code	Per cent	Code
1.00	La	0.04	Sa	3.00	Ca	0.20	Ma	0.20	Pa
1.50	Le	0.05	Se	3.20	Ce	0.40	Me	0.40	Pe
2.00	Li	0.06	Si	3.40	Ci	0.60	Mi	0.60	Pi
2.50	Lo	0.07	So	3.60	Co	0.80	Mo	0.80	Po
3.00	Lu	0.08	Su	3.80	Cu	1.00	Mu	1.00	Pu
3.50	Ly	0.09	Sy			1.25	My	1.25	Py
(0.25 allowed either way)		0.10 (Maximum)	Sh	(Minimum)		1.50 (0.25 allowed either way)	Mh	1.50 (0.15 allowed either way)	Ph

Bureau Reports Progress in Investigations

Results obtained from investigations of the nick-bend test of wrought iron, the effect of cold rolling on the hardness of metals, the use of cast iron for enameling purposes, and the mechanical analysis of foundry sand, are described in technical news bulletin No. 76 of the United States bureau of standards. It was found that a rapid application of the load in the nick-bend test, usually by impact, was necessary for the formation of crystalline areas. These appeared most readily in the test of those wrought irons in which the individual slag threads were small and uniformly distributed. However, the converse is not true. It was also found that the test cannot be used as a means of detecting high phosphorus iron.

The general character of the results obtained regarding the effect of cold rolling on the hardness of metals showed that the change in hardness resulting from cold working is represented by the V-curve. The abscissas show the degree of cold working, and the ordinates show the softness of the metal. The bureau has received several typical enameling castings and these are being enameled with several commercial cast iron enamels. The chemical analysis of the castings has been made. The relation of the chemical composition of the casting to the blistering of the enamel will be determined with the object of obtaining a good commercial cast iron which will not produce blisters.

A sample of foundry sand containing coal particles and coal dust was sent to the bureau with the request for some method of moving the coal so that the sand could be used again in the foundry. A mechanical analysis indicated that air separation would be ineffective but that some method of washing would be required.

Ironmaking Was a Thriving Industry in Fayette County

INTERESTING facts regarding the early history of ironmaking in the United States are contained in a communication from the Penn Iron & Steel Co., Creighton, Pa., of which George T. Lewis is president and general manager. Reminiscences and observations of Mr. Lewis, coupled with information handed down by his father, George Lewis, and his predecessors, cover an interesting period in the history of the puddled iron industry extending from 1814 down to the present time.

According to these sources of information, five Lewis brothers of Welsh parentage, who had been working in the forge plants of England and Wales, came to United States over a century ago. The oldest, Thomas C. Lewis, is said to have used the first rolls in a forge plant in America. Although rolls had been designed and patented 30 years before in England by Henry Cort, their introduction and use in the United States constituted an important step in the development of the infant iron industry.

Came From South Wales

References to the parts played by the Lewis brothers in building and operating the early furnaces and mill are found in several books and periodicals, particularly Swank's *Iron in all Ages. The Chronology of Iron and Steel*, and *The Cambrian*, a monthly periodical published in the interests of Welsh people and their descendants in this country.

Thomas C. Lewis, his brother George, and their three brothers and their families, quitted the iron works of Penydarren at Merthyr Tydvil, Glamorganshire, South Wales, in 1814 and went to Fayette county, Pennsylvania, where several iron works were operating on a small scale. At that time there were 10 puddling furnaces, one air furnace, eight forges, three rolling and slitting mills, one steel furnace and five trip hammers in Fayette county. These rolling mills, however, as well as all others operated in the United States prior to 1816, rolled only sheet iron and nail plate from blooms hammered under tilt hammers.

Soon after the arrival of the Lewis brothers in Fayette county, they met Col. Isaac Meason, a well known iron merchant in western Pennsylvania. They considered the expediency of rolling iron instead of hammering it, and at last Colonel Meason resolved to build a mill. Thomas C. Lewis was engaged as chief engineer, with George Lewis as his assistant. The mill was built near a small village known then as Plumstock, but which is now called Middletown, on the Redstone creek, between Connellsville and Brownsville. The rolls were obtained from the blast furnace of Dunbar, and were finished and prepared for work by George Lewis, David Adams and another were the puddlers, Samuel Lewis was the heater, James Lewis the holder, Henry W. Lewis was the clerk of the firm, and Samuel C. Lewis, the son of Thomas C. Lewis was the hooker-up. He was only 14 years old at the time, and lived up to Aug. 11, 1886 when he died at Pittsburgh, at the age of 80 years. George Lewis, the roller, was the Welshman who rolled the first bar of iron in America; James Pratt was the refiner and Benjamin Davies was the blacksmith.

First to Roll Iron Bars

This mill was the first in the United States erected to puddle iron and roll iron bars. It consisted of two puddling furnaces, one refinery, one heating furnace and one tilt hammer. Raw coal was used in the puddling and heating furnaces while coke was employed in the refinery. Although work was started in 1816, the mill was not ready for operation until Sept. 15, 1817.

In 1824, a great freshet in the stream washed away a large part of the mill, and the remaining part was removed to Brownsville. The next year, George Lewis formed a partnership with Reuben Leonard, and erected and placed in operation the Dowlais mill, at Pipetown, Pittsburgh. This George Lewis was the father of George and James C. Lewis, who built the rolling mills at Sharpsburg, near Pittsburgh, in 1846, under the firm name of Lewis, O'Hara & Lewis. Many inquiries have been made as to whether these Lewises were Welsh or English. The foregoing account shows that they were originally Welsh, from Merthyr Tydvil, Glamorganshire, South Wales.

George T. Lewis, president and general manager of the Penn Iron & Steel Co. who is the son of George Lewis, senior member of the firm of Lewis, O'Hara & Lewis, started work in his father's mill in 1859 and has been engaged in the manufacture of iron continuously since that time. He recalls that as far back as 47 years ago, when the puddling furnace was in general use throughout the United States, predictions were made that the making of puddled iron would be among the lost arts in less than a generation. Mr. Lewis has witnessed the decline of the puddling furnace, but meanwhile has experienced the justification of his early conviction that there always would be a demand for products of the puddling furnace when properly made.

Ship Chrome Ore

British South Africa shipped 6000 tons of chrome ore to America in June, while French Oceania sent 5000 tons, Cuba 2000 tons, Greece 1950 tons, Portuguese East Africa 1000 tons, and Canada 552 tons, making a total of 18,002 tons. These figures have just been reviewed by the department of commerce.

Group Insurance Wins Good Will

Adoption of Plans in Metalworking Industries Promotes Stabilized Relations Between Employers and Employes—Usual Method Provides Increase with Length of Service—Health Feature Rendered by Underwriters

BY WILLIAM F. CHAMBERLIN

CARLYLE once said: "The man who works with his hands and the man who furnishes work for that man to do must be bound together by ties that are stronger than mere wages." Group insurance is doing more perhaps than any other one thing to bring together the employer and employe on a basis whereby each can understand the other.

It is futile for an employer to talk about production costs and display elaborate cost charts to a man who has constantly before him the mental picture of a wife and family left destitute in the event of his sudden death. Once the future is taken care of through group insurance, the question of wages and hours can usually be adjusted on a fair and equitable basis.

That the leaders in the metal working industry are men of keen intellect, of broad vision and possessed of a sound business acumen is evidenced by the fact that last year's report of one large insurance company shows more group policies were written for this industry than for any other.

These men realize the truth contained in the old statement that "as a man thinketh so is he." If the primary instinct of fear, for example, is allowed to develop until it is a great over-powering force that motivates a man's every action, how can we expect that man to perform his task with any great degree of efficiency? Fear of what will become of the wife and family should he be taken away suddenly, fills his mind and prevents that concentration of thought which is so necessary for success in any kind of an undertaking.

Economic security is one of the first essentials to the wage earner if he is to realize his innate ambition for freedom from the ever-threatening nearness of destitution. Workmen's compensation now is generally provided; plant conditions are made safe and healthful to the limit of physical possibility; benefits and savings associations are encouraged; pension systems in great numbers prevail; unemployment insurance is beginning to attract much attention. Life, accident and sickness insurance for employes is coming very generally to be considered in some form or other by employers as an essential phase of security, having within it the elements of justice. That this is appreciated by employes is evidenced by the following remarks which were made by those of one concern regarding their own group policy:

"This is another forward step on the part of the company and is in keeping with its general policy to keep abreast of the times and in the forefront of commercial affairs; and to do for its employes anything that will tend to make them a happy and contented family."

Group insurance touches the most intimate interests of the life of an employe, adds a substantial amount to his or her estate, and in the place of worry substitutes a consciousness of well-being in the minds of those who are responsible for dependents.

The legal definition of group insurance states:

"Group life insurance is that form of life insurance covering not less than 50 employes with or without medical examination, written under a policy issued to the employer, the premium on which is to be paid by the employer or by the employer and employe jointly, and insuring all of his employes, or all of any class or classes thereof determined by conditions pertaining to the employment, for amounts of insurance based upon some plan which will preclude individual selection, for the benefit of persons other than the employer; provided, however, that when the premium is to be paid by the employer and employe jointly and the benefits of the policy are offered to all eligible employes not less than 75 per cent of such employes may be so insured."

Group life insurance must always be written according to some definite formula. The following plans have been found to be practical:

1—An unchanging amount of insurance, such as $1000 or some other fixed amount for each employe.

2—An amount of insurance based upon wage or salary, such as 75 per cent or 100 per cent of salary.

3—A progressive amount depending upon length of service. For example: At the end of three months service, $500, of insurance; at the end of one year of service, $750 of insurance; at the end of two years service, $1000 of insurance, and thereafter increasing by $250 a year until a maximum of $1500 or $2000 has been attained.

A short waiting period, such as three months, six months or one year, serves to eliminate the class termed "floaters." It will be interesting to note definitely the plan in use by two or three well known companies. The Oliver Iron & Steel Corp., of Pittsburgh, has adopted the insurance on a service basis. Each employe who has been with the concern six months and less than a year is insured for $750. This amount is increased $250 each year until a maximum of $2000 is attained after five years of service.

The Erie Malleable Iron Co., Erie, Pa., also has adopted a service rule. Each employe is insured initially for $500. This amount is increased $100 each year until a maximum of $1500 is attained after 10 years of service. Men employed subsequent to the contract date must complete a waiting period of three months before coming in under the contract.

The American Tube & Stamping Co., Bridgeport, Conn., has divided its employes into three classes. Class I is composed of employes who receive an annual salary of $3000 or more, and they are insured for $3000 flat. Class 2, consisting of clerical employes, are insured initially for $500, this amount being increased $100 each year until a maximum of $1000 is reached after five years of service. Class 3, consisting of all other employes, receive $1000 flat after five years of continuous service.

The Yale & Towne Manufacturing Co. has provided life and accident and sickness insurance for their employes. After completing six months of service, each employe is insured for $500 flat, this amount being increased $100 each year until the maximum of $1500 is attained after ten years of continuous service.

Under the group accident and sickness contract, each employe is entitled to a weekly indemnity amounting to one-half his weekly earnings, except that in no case shall the weekly indemnity be less than $8 nor more than $18.

Companies in the iron and steel and metal manufacturing industries with few exceptions, employ the service formula upon which to base their group life, accident and sickness insurance. The exceptions have arranged for group insurance in flat amounts; that is, the same amount of insurance is given to all employes regardless of length of service or other conditions. Employers as a rule, are more inclined towards the

The author is superintendent, group insurance department, Travelers Insurance Co.

service formula, because it recognizes past loyalty and rewards length of service as time progresses. It is, an inducement for employes to remain with a company.

Group insurance, where it is carried by an insurance company equipped to render to highly developed service, cooperates with the assured in the attainment of the safest possible working conditions through an inspection service. The service rendered by such an insurance company would have the effect of clinching work already done by a manufacturer along safety lines, and encouraging it where such activity has not been especially marked.

Employers have been much gratified with the reduction of accidents, and the elimination of hazards, that have been effected through the co-operation of the engineering and inspection service rendered to those employers who carry group insurance. A service in personal health is usually at the disposal of the employers. Health talks are given by the insurance company doctor on whatever subjects are pertinent to the particular industrial corporation. Two or three companies distribute health booklets for employes, and other booklets dealing with industrial policy and technique for foremen and employers.

It is the object of those perpetuating the use of group insurance to make its influence felt in three ways: good will from the employer to the employe, from the employe to the employer, and between those parties and the insurance company. This actually is accomplished in practically all cases.

To Establish Museum

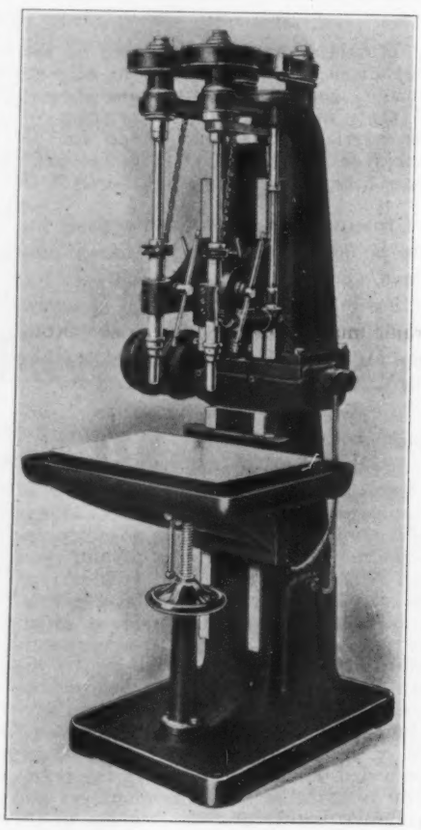
Atlanta, Sept. 25.—Following a survey of industrial conditions in Atlanta and the adjacent territory, by C. H. Cannafax, New York, representing the Philadelphia Commerical museum, the announcement is made that the museum will establish a southern branch in Atlanta some time next year to handle foreign trade for the industries of the district on an extensive scale.

Heretofore the South's primary export trade has been with Latin-American countries, but establishment of the southern office in Atlanta by the Philadelphia Commerical museum is expected to materially broaden the scope of the South's export trade within the next few years as the concern maintains representatives in 32 foreign countries. Machinery and tools and railroad equipment and supplies, have formed the principal southern commodities sold for export.

Introduces New Type of Drilling Machine

A new drilling machine, built in from two to eight spindles, recently has been introduced by the Henry & Wright Mfg. Co., Hartford, Conn. A view of the new machine is shown in the accompanying illustration. It is claimed that the device requires a small amount of floor space with low operative and upkeep costs, and in turn increases production and takes less time for speed and feed changes.

The distances between the centers of



MOTOR-DRIVEN MULTIPLE SPINDLE DRILLING MACHINE FOR RAPID PRODUCTION

spindles Nos. 1 to 8 is 9 inches, with the maximum distance from the table to the spindle being 27½ inches. The diameter of the spindle is ⅞ inch and the diameter of the lower end of the spindle is 1⅛ inches. The drive is by means of a 1-horsepower motor running 1750 revolutions per minute. The working surface of the table is 16 x 16 inches and the table dimensions including oil gutters is 22 x 21 inches. The machine occupies a floor space having dimensions of 22 x 32 inches and is 78½ inches high.

Ohio Foundry Operations Show Decrease

Production of Ohio foundries tapered off slightly in August as compared with July, according to the monthly trade report of the Ohio State Foundrymen's association. During August the industry operated at 79.56 per cent of normal whereas it operated at 85.32 per cent of normal during the preceding month. This slackening was to be expected and is not significant when compared with last year's mark when the melt was only 70 per cent of capacity.

The normal or capacity figure is the total capacity of all foundries reporting and for August was 22,683 tons. The monthly percentage figure was arrived at by dividing this amount into the monthly production figure, 18,048 tons. Stocks received for the month which is a total of all pig iron and scrap iron received, equaled 14,899 tons or 65 per cent of the normal melt figure. This is a considerable increase over July with 37 per cent, and August, 1922, with 50 per cent. Stocks on hand also increased over July, the values for July and August 1922, being 96 per cent, 101 per cent and 90 per cent respectively.

The complete summary for August is shown in the accompanying table:

	Tons	Per cent of normal melt
Normal melt	22,865	100.0
Actual melt	18,048	79.56
Pig iron received	11,031	48.24
Spot	314	.....
Contract	10,717	.....
Scrap iron received	3,868	16.9
No. 1 machinery	930	.....
No. 1 railroad	966	.....
Miscellaneous	1,972	.....
Pig iron on hand Sept. 1	17,085	74.73
Scrap on hand Sept. 1	5,948	26.01

Nonferrous operations on the other hand showed a fair improvement over July, with a figure of 80.7 per cent as against 77.22 per cent.

Coke Ovens Lighted by Canadian Company

The war reparations commission in session at Montreal has begun the hearing of claims to cover war losses sustained by the Dominion Steel Corp., and six of its subsidiaries and the Nova Scotia Steel & Coal Co., amounting in all to $16,711,170. The items include torpedoed vessels under charter, chartered steamers requisitioned, costs of substituting requisitioned vessels, losses of contracts and war risk premiums.

The Canadian Fairbanks-Morse Co., Ltd., reports bookings increased 25 per cent over those of the corresponding period last year and shipments increased 23½ per cent. The expansion has been greatest in the industrial equipment field and business has also been good in the agricultural implement department.

Propose Coal Buying by Analysis

Southern Ohio Iron and Coke Association Sponsors Marketing Plan in Fuel Similar To That in Iron Ore—Freight Loading Records Are Analyzed—Officers Are Elected For Ensuing Year

PROPOSAL by the Southern Ohio Pig Iron and Coke association that coal purchases be made on an analysis basis, much after the manner of Lake Superior iron ore, is to be urged by the members upon the bituminous trade of the country. Especially, consumers of coal such as the large industries and the by-product coke producers are being lined up behind the proposal. The officers and members at the annual meeting held at the Columbus Athletic club, Columbus, O., on the night of Tuesday, Sept. 18, in support of their proposal expressed conviction that this method of selling and buying coal will eliminate much bad fuel, will help the railroad car supply and will put the coal industry out of the class of "trade" and into real "business."

President R. H. Sweetser of the Southern Ohio association, in urging the sale and purchase of coal by analysis said:

"Within the memory of men now active in the iron business, iron ore was bought and used without any chemical analysis, and the prices were subject to trading and not based upon iron content; most coal now is sold the same way. Each per cent of iron in an iron ore now has a definite, known value; but comparatively few people understand the increasing value of coal with each decreasing per cent of ash.

"Just as there are many kinds of ore adapted to different iron products, so there are many kinds of coal suitable for different uses. * * * What has been done in a technical way to find methods for determining the value of the great number of iron ores can be done in a similar way for coal. Progress in this direction should be more rapid than it was in the ore business because of the cooperation between coal men, coke men and blast furnacemen now already in effect."

Briefly, the plan is to urge coal producers to analyze by their own chemists or by independent chemists employed regularly as in the case of iron ore buying, and then sell on that basis. A base price can be agreed upon after a fuel base itself has been established, and then a buyer, who also can employ an independent inspector as do southern Ohio iron ore buyers today, will know just what he has obtained. Automatically, this would raise the fuel standards by its definiteness, it was urged by several speakers in support of the proposal; it would reduce the amount of ash and sulphur in the coal bought, it would reduce by that much the excess dead material carried in freight cars and thus cut down the number of cars needed to move coal materially and generally aid in production cost curtailment.

While further suggestion was made that possibly an arrangement might be made with the railroads to permit chartering of freight cars for definite tonnages of coal at definite times, such as is done with lake vessels in the ore, coal and grain trade, yet it was pointed out by J. L. Rooney, traffic manager of the American Rolling Mill Co., Middletown, O., that the interstate commerce commission would not permit such a thing, especially in view of the difficulties still involved in the pending "assigned car" case. The speaker pointed out that three factors now operate to permit the great car-loading records being made by railroads: More locomotives by 5000 than in two years, faster car movement by 3½ miles daily, and heavier loading of cars by 5 tons to an average of 28 tons per car, these combined being equivalent to 700,000 cars additionally put into service this year.

Several coal operators present offered suggestions tending toward earnest co-operation to put through the analysis feature. It was shown the federal government before the war bought coal on such a basis, but the needed quantity of fuel in wartime let down the bars temporarily, while others said such an analysis feature had been attempted 10 years ago but did not receive the expected encouragement. On vote of the membership of the association, it was decided the start soon to back the proposal.

Election of officers for the ensuing year resulted unanimously as follows: President R. H. Sweetser, American Rolling Mill Co., Colulmbus; vice presidents, George Hansen, American Rolling Mill Co., Ashland, Kentucky district, H. A. Berg, Harting Iron & Steel Co., Ironton district, W. T. Brown, Star Furnace Co., Jackson district, P. G. Wielander, Wheeling Steel Corp., Portsmouth district, and Joseph F. Savage, Hamilton Furnace Co., Hamilton district; secretary-treasurer, Donald H. Putman, Ashland By-Product Coke Co., Ashland, Ky.

The special guest of honor was E. P. Mathewson president of the American Institute of Mining and Metallurgical Engineers, New York City. The members of the Ohio section of the institute also were present as guests of the Southern Ohio association. President Mathewson gave a most entertaining account of the recent trip of the institute through the Canadian mining camps and urged joining the organization.

The Southern Ohio association and the Ohio section members were entertained by the Marble Cliffs Quarries Co., Columbus, which provided a most interesting inspection of the extensive properties as well as splendid entertainment at the Cioto Country Club and the Columbus Athletic club, this being in charge of President W. H. Hoagland, Vice President and General Manager H. J. Kauffman and Secretary and Assistant General Manager P. C. Hodges.

Dixie Foundries Active

Atlanta, Sept. 25.—According to information from the Southern Metal Trades association, headquarters of which are in Atlanta, the first two weeks of September has witnessed a considerable improvement in the metal trades industries in this district. This is true principally of the foundries, which at this time are enjoying as large a volume of business as they have experienced in the past five or six months. The result has been quite an increase in foundry operations over the district the first 10 or 12 days of the month, with the industry more optimistic over the outlook than it has been in some time. The machinery trades report a material increase in sales amounting to at least 10 per cent as compared with the first two weeks of August.

The Big Creek Coal & Iron Co., operating coal and iron mines in Walker and Dade counties, in Georgia, has filed a voluntry petition in bankruptcy, listing liabilities at $13,127.83, and assets at $14,250. The action was decided upon at a recent meeting of the stockholders. The company controls 5500 acres of land in Georgia containing iron ore deposits.

Show German Casting Equipment

Both Scientific and Practical Material Displayed at Convention in Hamburg—New Types of Oil-fired Crucible Furnaces Shown—American Manufacturers Exhibit Various Kinds of Machinery

BY HUGO HERMANNS
German Correspondent, Iron Trade Review

HOUSED adequately in the exhibition sheds of the zoological gardens the exhibition and convention held in Hamburg under the auspices of the German Foundrymen's association demonstrated the application of science to the art of founding in metals. The exhibition was made up of two sections, scientific and practical, arranged in different parts of the building. Drawings, patterns, photographs and diagrams in the scientific section indicated the improvements that may be effected by using measuring appliances for temperatures and gases, by the use of suitable fuel and furnaces and by the employment of welding outfits, welding machinery and welding processes.

General foundry equipment partly shown in operation was exhibited in the part of the building devoted to the practical section.

An interesting model of a cupola furnace by Bestenhostel, with inclined shaft was shown. The inclined stack is designed to eliminate unequal distribution in the stack. The suggestion, so far, has not been tried out in actual practice.

A type of oil-fired crucible furnace shown attracted considerable attention. Instead of the usual solid sheet this furnace is enclosed in a perforated metal shell which it is claimed has increased the radiating area at least 100 per cent and thus has a tendency to keep the air cool in the immediate vicinity of the furnace. This melting device is mounted partly in a pit for the convenience of the operator in charging and tapping the metal and also in watching it during the melting process.

Oil and air for combustion enter the body of the furnace through the hollow trunnions on either side and are conducted through suitable piping to the burner. The compressed air is passed through an air chamber immediately below the melting chamber and in that manner the outer wall of the melting chamber is cooled while the air is heated to a certain extent before it enters the burner nozzle. The burner is made up of three nested nozzles and is arranged in such a manner that the inner section may be adjusted at any desired angle with the outer nozzle.

The burner and nozzle are located exactly opposite to the two openings, one designed for pouring the metal from the crucible and the other provided to facilitate the removal of any metal that may spill in the chamber in the event of a crucible breaking.

Important changes have been made in the method of firing core and mold ovens in recent years. Special firing chambers, grates and auxiliary equipment are required to successfully use the type of fuel now available on account of the high moisture content of approximatly 60 per cent.

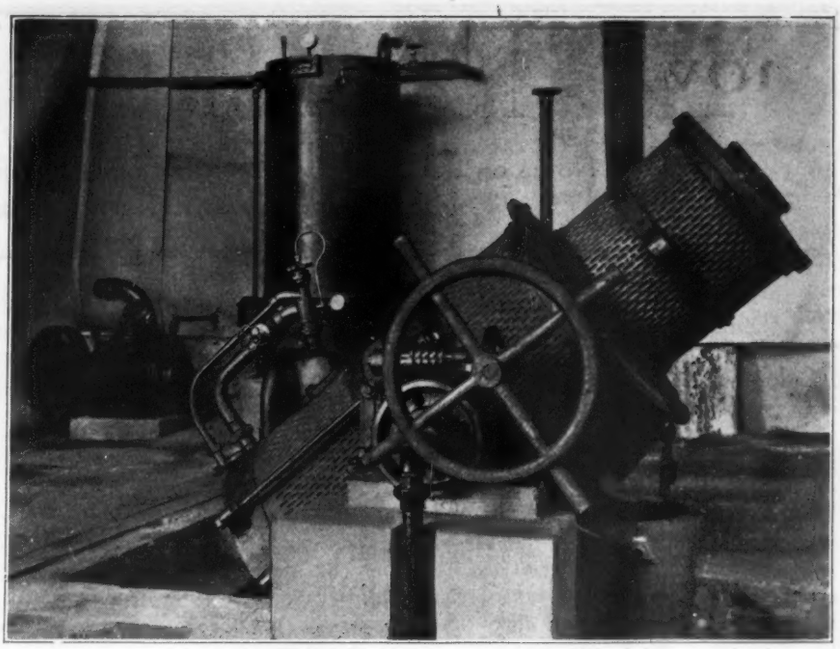
Molding machines both of foreign and domestic design were exhibited in considerable numbers. Next to the American machine made by the Tabor Mfg. Co., Philadelphia, the machine that attracted the most attention was one made by Zimmerman. The only points it has in common with a few machines are that the pattern plate is

MOLDING MACHINES, BOTH HAND AND POWER OPERATED, WERE SHOWN IN EXTENSIVE VARIETY

attached by a swinging connection to a side rod, both cope and drag are formed before the complete mold is removed from the machine table, and the molds are made without flasks. The machine is power operated.

The position of the pattern plate in relation to the height of various drags, the stroke of the ram and the height of the squeezing plate may be adjusted within comparatively wide limits. While operating the machine, two levers must be worked simultaneously and for that reason the operator runs no risk of injuring his hands. The machine is provided only with a single pillar and a complete mold is made with eight operations.

Many interesting machines were shown in the section devoted to molding machinery including a disintegrating and mixing machine for preparing green sand for the use of the molders, also a small appliance for mechanically blacking the face of a mold rapidly and uniformly. An ingenious machine was shown for making pipe bend cores; another electrically operated, jar-ram, rollover machine was shown in action and a hand-operated molding machine was on exhibition designed for producing delicate hollowware in green sand molds. A small hand-operated squeezer machine using an aluminum snap flask approximately 16 x 11¾ x 8 inches is credited with turning out a complete mold every 60 seconds. In view of the great lack at the present time of iron and other metals in Germany and the necessity of conducting foundry operations on a most economical scale it was only natural to find that equipment designed to reclaim metal from foundry waste was shown quite extensively. One machine depending on mechanical construction to enable it to function, closely resembled a machine that is made by the W. W. Sly Mfg. Co., Cleveland. Several types of electromagnetic separators were represented.



OIL FIRED FURNACE IN WHICH REFRACTORY LINING IS ENCLOSED IN A PERFORATED STEEL SHELL

One design shown consists of a rotating drum provided with stationary magnets, a shaker trough which distributes the material uniformly over the drum and an oscillating riddle under the drum for removing the sand and other foreign matter from the recovered iron.

Discuss Practical Foundry Operating Problems

SEVERAL features connected with practical foundry operation were discussed before the general session of the Verein Deutscher Giessereifachleute and the Verein Deutscher Eisengiesserein which was held at the same time and in connection with a foundry exhibition, at Hamburg, Germany, Aug. 19 to Sept. 21. A new theory on the side-blown converter process was advanced by P. Laval. He stated that according to his experience and observation the secondary constituents of the iron bath in the converter are not burned through combining immediately with the oxygen of the air. Instead, the iron first is oxidized and forms ferrous oxide. The oxides of the iron are the oxygen carriers for the silicon and manganese and these are the elements that promote the process of combustion. He claimed that the time consumed in the process may be cut down by shutting off the blast before all the carbon has been burned out.

Hubert Hermanns presented a new method for preparing heat balance sheets in connection with the converter process by which it is claimed the various actions and reactions of the elements clearly are indicated.

The Geologische Landesanstalt, National Geological institute, through Professor Behr presented a report on the work that has been carried out so far in locating deposits of molding sand in Germany. A map has been prepared on which the location of the deposits has been indicated together with the character of the sand and the class of work to which it is best adapted. Dr. Ing. Kuhnel delivered a lecture explaining the separation of the constituent elements in castings of various metals.

Experiment on Cast Iron

Professor Bauer has carried out experiments to determine the relationship existing between the contraction and shrinkage of cast iron in comparison with the weight of volume of the casting. As a result of his investigations he presented conclusions tending to show how these undesirable features may be reduced or eliminated. In conclusion he stated that iron with a high sulphur content should not be used since it has a tendency to promote shrinkage and contraction in iron irrespective of whether it is poured hot or cold.

Motor Operations Gain

Detroit, Sept. 25.—The Buick Motor Car Co. on Sept. 17 set a new high record in production when 1015 cars were turned out. The production schedule in September calls for 20,000 cars, an increase of 4000 over August. The Hupp Motor Car Co. has increased its working operations one hour a day and from a five to a six-day week. The September production is placed at 5000 cars. The schedule of the Packard Motor Car Co. in September has been revised down to 1500 cars instead of 2000 as formerly announced.

Late News of the Societies

Notes on Past and Coming Meetings of National and Local Trade and Technical Organizations

A WIDE range of industry and education is affected by a reorganization of the Machine Shop Practice division of the American Society of Mechanical Engineers, plans for which are announced by President John L. Harrington, Kansas City, at the society's national headquarters in New York. Under the new scheme, the activities of the division, headed by F. O. Hoagland, Bridgeport, Conn., as chairman, will be directed toward promoting the art of machine shop practice throughout the United States.

Local sections of the society in Cleveland and other middle western cities will co-operate. Announcement of the election of officers by this branch for the coming year is made by the society. Col. James Guthrie, consulting engineer, heads the Cleveland section, with E. P. Burrell as vice chairman. E. E. Blundell is secretary and LeRoy A. Quayle, Cleveland water department, treasurer. Members of the executive committee are: C. C. Robbins, Cleveland Crane & Engineering Co., Wickliffe, O.; F. L. Sessions, consulting engineer, H. C. Gammeter, American Multigraph Co.; E. G. Bailey, Bailey Meter Co.; C. H. Baker, Diamond Alkali Co., Painesville, O., and A. G. McKee.

Definite aims of the Machine Shop division are the encouragement of original research in the machine shop field and of education in machine shop practice, and the advancement of standards of machine shop practice as well as its exact knowledge. Colleges and universities will be asked to adopt broader programs of instruction in this sphere.

Ten years of organized effort have been mapped out by a special committee on plan and scope. Co-operation will be established between the society's division and local sections and branches in sixty-two industrial centers, enlisting the activity of more than 17,000 engineers. In each of these centers the division will name one or more representatives who will act as liason officers.

Research and standardization are among the principal problems to be dealt with. Discussion of principles applicable to machine shops everywhere will be arranged for the two national spring and winter meetings of the society. Nationwide regional gatherings will discuss problems of specific industries, including processes such as are employed in the Cincinnati machine tool building shop area, and the textile machinery method affecting New England and the South.

A four-day machine tool exhibit, it is announced, will be held in the Mason Laboratory of Mechanical Engineering, New Haven, Conn., beginning Sept. 18, under the auspices of the New Haven section of the American Society of Mechanical Engineers, the Mechanical Engineering department of Yale university, and the New Haven chamber of commerce.

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Talks on Boilers

J. B. Crane, sales manager of the George T. Ladd Co., Pittsburgh, addressed the M. E. Cooley association No. 7 of the National Association of Stationary Engineers at Detroit, Sept. 6 on "Large Water Tube Boilers." Mr. Crane will also talk on "Vertical vs Horizontal Water Tube Boilers" at the next meeting of the Pittsburgh section of the National Association of Stationary Engineers.

* * *

Foundrymen Meet

Foundry coke was discussed from a metallurgical and practical standpoint at the first meeting of the Quad City Foundrymen's association for the year 1923-24, which was held at the LeClaire hotel, Moline, Ill., Sept. 17. The president of the association also gave a brief talk and explained the program which has been outlined for the year.

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Sulphur Not Detrimental

High sulphur content in pig iron is not necessarily detrimental to good foundry practice according to George A. Richardson of the Bethlehem Steel Co., who gave an illustrated talk at the first fall meeting of the New England Foundrymen's association Sept. 12 at the Exchange club, Boston. Mr. Richardson followed through the complete history of pig iron from the ore in the ground to the completed casting.

* * *

Discuss River Transportation

At the regular monthly meeting of the Engineers' Society of Western Pennsylvania held Sept. 25 at the William Penn hotel, A. E. Crockett, manager of the bureau of inspection for the Jones & Laughlin Steel Corp., Pittsburgh, delivered an address on "River Transportation." Mr. Crockett gave the history of interior waterways development, particularly with reference to the Ohio, Monongahela and Allegheny rivers, dwelt at length on the method for handling freight at terminals on the Mississippi river, and portrayed a bright future for river transportation of iron

Convention Calendar

Sept. 27-29—American Electrochemical society. Annual meeting at Dayton, O. Dr. Colin G. Fink, Columbia university, New York, is secretary.

Oct. 1-6—National Safety council. Convention and exhibition, Hotel Statler, Buffalo. W. H. Cameron, 168 North Michigan avenue, Chicago, is secretary.

Oct. 2-4—National Machine Tool Builders' association. Annual convention at Lenox, Mass. E. F. du Brul, 813 Provident Bank building, Cincinnati, is secretary.

Oct. 2-5—American Institute of Electrical Engineers. Pacific coast convention, Del Monte, Cal.

Oct. 8-12—American Society for Steel Treating. Annual convention at Pittsburgh, W. H. Eisenman, 4600 Prospect avenue, Cleveland, is secretary.

Oct. 8-13—National Fire Protection association. International Fire Prevention congress, Seventy-first Regiment Armory, N. Y. The secretary of the association may be addressed at 25 East Twenty-sixth street, New York.

Oct. 15-20—American Gas association. Annual convention, steel pier, Atlantic City, N. J.

Oct. 23-24—American Society of Mechanical Engineers. Regional meeting, Chattanooga, Tenn. E. C. Patterson, general manager, Chattanooga Boiler & Tank Co., Chattanooga, Tenn., is in charge of details.

Oct. 24-26—National Association of Farm Equipment Manufacturers. Annual Meeting at Cleveland.

Oct. 24-26—American Welding society. Fall meeting at Pittsburgh. M. M. Kelley, 33 West Thirty-ninth street, New York.

Oct. 25—American Iron and Steel institute. Fall meeting, Hotel Commodore, New York. E. A. S. Clarke, 40 Rector street, New York, is secretary.

Oct. 25-27—American Gear Manufacturers association. Fall meeting, Mountain house, Lake Mohonk, N. Y. T. W. Owen, 2443 Prospect avenue, Cleveland, is secretary.

Oct. 29-31—American Management association. Meeting at Hotel Astor, New York.

Nov. 19-22—Electric Power club. Fall meeting at French Lick Springs hotel, French Lick, Ind. S. N. Clarkson, Rockefeller building, Cleveland, is secretary.

Dec. 3-6—American Society of Mechanical Engineers. Annual meeting, New York. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

Dec. 3-8—Power and Mechanical Engineering— National Exposition, Grand Central palace, New York. Fred W. Payne and Charles F. Roth, Grand Central palace, New York, are in charge.

Dec. 5-8—American Institute of Chemical Engineers. Winter meeting, Washington. J. C. Olsen, Polytechnic institute, Brooklyn, N. Y., is secretary.

and steel products. The paper was well illustrated with lantern slides.

Following Mr. Crockett's address, William McConway, president of the McConway & Torley Co., explained a number of lantern slides and motion pictures of the centrifugal casting of steel ingots. The slides showed the centrifugal molding press and its product as well as the various stages of manufacture to produce certain commercial articles from the product by pressing in dies or rolling in a tire mill. The motion picture film showed the actual production of a perforated steel cylinder or disk by pouring molten metal from ladle into a rapidly revolving matrix of centrifugal molding press, in which the centrifugal force is associated with hydraulic pressure to follow up the shrinkage

The members of the Engineers' Society of Western Pennsylvania will participate in an inspection trip to Detroit Sept. 28, 29 and 30. Plants of the Ford Motor Co., and the Detroit-Edison Co., will be visited.

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Announce Convention Dates

The 1924 convention of the National Association of Purchasing Agents will be held in Boston during the week of May 19. A. V. Howland has been appointed general chairman for the association's local committees to carry out the details of the convention. On the National association's committee for the next convention are: Charles A. Steel, Philadelphia; A. G. Hopcraft, Cleveland; E. A. Scheibe, Rochester, N. Y.; A. V. Howland, Boston and W. L. Chandler, national secretary.

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Secretaries To Meet

The semiannual meeting of the administrative council and the secretaries of the National Metal Trades association will be held at Hotel Cleveland, Cleveland, Oct. 3 and 4. A joint session will be held the first day and separate sessions will follow. The secretaries elect their own presiding officer.

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Speaks on Magnetic Testing

"Some Recent Developments in Magnetic Testing" was the subject of an address presented by Dr. C. W. Burroughs, consulting engineer at the regular monthly meeting of the New York chapter of the American Society for Steel Treating, Woolworth building, New York, Sept. 19.

* * *

Apprenticeship Discussed

Apprenticeship in the building trades was the subject of the discussion at the first fall meeting of the Boston society of civil engineers which was held in Boston, Sept. 19. The subject was approached from three angles. Maj. H. S. French represented the employers, James M. Gauld and George Thornton presented the views of the employes, and William Stanley Parker covered the general situation as it affects the public and the country.

* * *

Order Standardized Gages

At the current meeting of the National Association of Brass Manufacturers in Cleveland, the die committee of the association reported that it had rechecked the models made by the Greenfield Tap & Die Corp., for uniform sizes, tapers and threads of all basin and bath faucets, and that substantially all of the members of the association have placed their order for a set of these gages. This will not only provide a uniform and interchangeable system of threads for plumbing fixtures, but also will result in a marked saving in the cost of the gages. The association adopted a resolution endorsing a bill for private ownership and operation of the shipping board fleet. The association will meet next in New York on Dec. 12 and 13.

July Freight Traffic Is Greatest in History

Washington, Sept. 25.—Freight traffic on railroads of the country in July was the largest in history for that month, with the exception of 1918 and 1920. Tabulation of reports of the carriers by the bureau of railway economics shows the movement, measured in net ton miles was 38,513,263,000. In July, 1920, this figure was exceeded by nearly 5 per cent and in July, 1918, it was exceeded by about 2 per cent but the July traffic surpasses all the other previous years.

Compared with July, last year, when freight traffic fall off somewhat due to the strikes of both miners and railway shopmen freight traffic in July, this year, was an increase of 42 per cent. In the eastern district, which was especially affected by both strikes, an increase of more than 62 per cent in freight traffic over the corresponding month last year was reported, while the southern district showed an increase of more than 30 per cent and the western district 22 per cent.

The average load per car in July was 28½ tons. This was not only an increase of three-tenths of a ton over the average for June, this year, but was the highest average for any July since 1917, except in July, 1918, when the average was 30.1 tons, and in July, 1920, when it was 29.5 tons.

The average movement per freight car during July was 27.8 miles. This was a decrease of one-half mile compared with the average for June.

South's Greatest Plant Development Year

Atlanta, Ga., Sept. 25.—According to information received from a reliable source by the Southern Metal Trades association in Atlanta, the metal trades industries of the South experienced a decline in August as compared with the earlier months of the year, in the number of new companies formed, and the construction of additional units and new plants by the existing companies. Only two or three such projects were made public in the southern states during August, as compared with more than 140 projects of this nature that had been previously announced during the first seven months of the year. This is exclusive of the industries classed as foundries and machine shops, and iron and steel plants. In the former about 10 such projects were announced during August in the South, with the total for the first eight months of the year above 185. In the iron and steel industries the total of such projects in the first eight months has been around 15, with two or three announcements in August.

In spite of the August decline, however, it is now almost a certainty that 1923 will prove the greatest development year these industries have ever had in the amount of new construction and in the number of new foundries, shops and mills constructed by newly formed companies.

Penalties on Occupation Tax Now in Issue

Duluth, Minn., Sept. 17—Minnesota mining companies have been granted a special hearing by the state tax commission early in October to present arguments for elimination of penalties aggregating $1,300,000 and also for a reduction of two years' occupational taxes aggregating approximately $5,200,000. Notices for the immediate payment of taxes and penalties for failure to pay in time were issued last week by the state treasurer, the occupation tax law having been upheld in the United States Supreme Court. The companies appealed against the penalties, and were instructed by the state commission to file an application for repeal and for tax reductions by Sept. 24.

The Carbondale Machinery Co., Carbondale, Pa., has increased its capital stock from $100,000 to $1,000,000.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields

CHARLES M. SCHWAB, chairman of the board of the Bethlehem Steel Corp., was elected recently as a director of the Stutz Motor Car Co. of America. Mr. Schwab bought a controlling interest in that company on the retirement of Allan A. Ryan. He succeeds A. S. Cassidy on the board.

M. F. Day Jr., for the past few months representative of Rogers, Brown & Co., has resigned.

Thomas M. Binks, for 10 years general manager and superintendent of the Warner Hammer Co., Cromwell, Conn., has resigned.

George Gordon Crawford, president of the Tennessee Coal, Iron & Railroad Co. has returned to Birmingham after a three months tour of Europe.

James A. Green has resigned as superintendent of the Turner & Seymour Mfg. Co., Torrington, Conn., after being in its employ for nearly 20 years.

William A. Rogers of Rogers, Brown & Co., sails Oct. 2 to spend several months in India, Ceylon and Siam.

F. W. Robinson is manager of the Boston office of the Armstrong Cork & Insulation Co., Pittsburgh, recently moved to 275-85 Congress street, Boston.

Harry R. Sinclair, president of the Worcester Stamped Metal Co., Worcester, Mass., has returned from a summer's tour of Switzerland, Italy, France and England.

A. W. Britton, one of the owners of the Modern Tool & Die Co., Leominster, Mass., has been elected secretary of the Park Mfg. Co., Worcester, Mass., in which he has secured an interest.

J. G. Robson is president of the newly incorporated General Gear Shifter Mfg. Co., Bridgeport, Conn. E. Gould is vice president and George E. Humphrey is secretary and treasurer.

Fred C. Gardner, an official of E. C. Atkins & Co., saw manufacturers of Indianapolis, Ind., has been named treasurer of the Indiana Taxpayers association, recently organized.

Earl J. Christy, one of the receivers of the Milmine Iron & Steel Co., Toledo, O., resigned from that connection recently. Wallace Applegate is now in complete control of the company's affairs.

Richard N. Gaylord has concluded his duties as assistant superintendent of the Vitrified Wheel Co., Westfield, Mass.

Vladimir List, engineer and professor of electrical engineering at the Technical University of Brno, Czecho-Slovakia, is visiting Canada. He is inspecting electrical and transportation developments.

F. M. Cockrell, formerly promotion manager of McGraw-Hill Co., New York, has been appointed manager of industrial advertising of Campbell-Ewald Co., 18 West Thirty-fourth street, that city.

Sir Alfred Mond, M. P., chairman of the Amalgamated Anthracite Co., Ltd, Wales, arrived in New York, Sept. 21, on the BERENGARIA, to observe coal operations in this country and also to investigate nickel production in the United States and Canada.

Lloyd L. Tower, inspector for the Putnam Machine works of Manning, Maxwell, & Moore, Inc., Fitchburg, Mass., has resigned from that company to accept an instructorship in mechanical engineering at Rhode Island State college, Kingston, R. I.

Parmly Hanford, secretary of the Hendee Mfg. Co., Springfield, Mass., has succeeded John D. Stephens, who resigned recently as treasurer. Mr. Hanford will hold both positions. John W. Leahy, chief accountant, has been elected assistant treasurer, a newly created office.

R. C. Twitchell, secretary of Hart & Cooley Co., Inc., New Britain, Conn., has been elected treasurer to succeed the late E. Clayton Goodwin. R. W. Blanchfield, manager of the Chicago office of the company succeeds Mr. Twitchell as secretary and William H. Hart succeeds Mr. Goodwin as a director.

Bert DeWitt, superintendent and chief chemist of the Belmont Stamping & Enameling Co., New Philadelphia, O., has resigned from that organization effective Oct. 1. He will then become superintendent of the Gueder, Paschke & Frey Co., Milwaukee, manufacturer of enameled and tin ware. His successor at the Belmont plant, where he has been for the past 12 years, has not been named.

Sidney Rogow has opened offices in the Cleveland Discount building, Cleveland, where he will have his headquarters for selling in the Ohio territory, the products of the National Concrete Metal Forms Corp., of which he is vice president. Alan Frezer, Pacific coast agent for the Wickwire-Spencer Steel Corp. also will act as Pacific coast representative for the National Concrete Metal Forms Corp.

Charles F. Abbott is now assisting L. H. Miller in directing the work of the American Institute of Steel Construction, Cleveland. Mr. Abbott will have his headquarters in New York from where he will direct the business end of the institute, while Mr. Miller will continue to direct the technical work from the Cleveland office. Mr. Abbott has had a wide experience in practical business and industrial organization.

Walter E. Broadbelt recently has been made assistant general manager for the Reading Steel Casting Co., Reading, Pa. Mr. Broadbelt has had a wide experience in steel foundry lines with especial reference to pattern making, applying molding equipment, and other production problems. He was foundry engineer at various times for the Lebanon Steel Foundry, Lebanon, Pa; the Michigan Steel Casting Co., Detroit; and Eagan-Rogers Steel & Iron Co., Crum Lynne, Pa.

Roy L. Kneedler has accepted a position as foundry superintendent for French & Hecht, Davenport, Iowa. Mr. Kneedler recently resigned as foundry superintendent for the Climax Engineering Co., Clinton, Iowa. Previous to that time he was for 17 years with the Weber Engine Co., Kansas City, Mo., three years with B. T. McDonald Pittsless Scale Co. and five years with the Union Machine Co., Bartlesville, Okla. Mr. Kneedler's experience covers 35 years in the foundry business during 20 years of which time he has held positions as foundry superintendent.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

THE Elyria Foundry Co., Elyria, O., subsidiary of the Brown Hoisting Machinery Co., Cleveland, has taken over the buildings and land of the Elyria Machine Co. The plant will be used to extend the operations of the foundry company. It formerly was used for making gas engines and was at that time controlled by the Cromwell Steel Co., Lorain. This is the second plant in Elyria purchased by the Brown Hoisting company, the other being the Duplex Foundry Co.

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PLANS have been arranged whereby the operations of the Hardinge Conical Mill Co., 120 Broadway, New York, will be concentrated in its plant at York, Pa. Assembling, manufacture, etc., will be carried on at this plant.

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ANOTHER addition is being planned for the Toledo Chevrolet Co., 150 x 250 feet, of concrete steel and brick. One addition is already under construction. The plant now employs 1500 men and when the proposed building additions are completed 2500 will be engaged.

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AN ADDITION to the core room and foundry of the plant of the National Radiator Co., New Castle, Pa., recently completed, has increased the capacity 25 per cent. The new addition is 405 x 62 feet and was made necessary by the increased business of the company. A shortage of men is all that keeps the plant from working full time on current orders.

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AMONG the many buyers of furnaces and furnace equipment from F. J. Ryan & Co., Philadelphia, recently, were the Standard Steel & Bearings Co., Plainville, Conn., three double chamber type annealing furnaces; Rickenbacker Motor Car Co., Detroit, two pot and one oil tempering furnace, one annealing furnace and three carbonizing furnaces; Pusey & Jones Co., Wilmington, Del., equipment for oil firing of boilers; United States Cast Iron Pipe & Foundry Co., Birmingham, Ala., automatic control for pipe annealing furnace; Reading Hardware Co., 10 brass melting furnaces, Penn Seaboard Steel Co., Tacony, Pa., burner equipment for entire battery of core ovens and Hupp Motor Car Corp., Detroit, equipment for oil firing of boiler.

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MECHANICALLY operated gear shifters are being manufactured by the General Gear Shifter Mfg. Co., 215 River street, Bridgeport, Conn., recently incorporated for $25,000. J. G. Robson is president of the new company, E. Gould is vice president and G. E. Humphreys is secretary and treasurer.

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NEW construction being planned by the R. B. Collis Sprayer Co., Benton Harbor, Mich., manufacturer of spraying machinery, gas engines and other equipment, consists of a 2-story brick and reinforced concrete building, 50 x 125 feet, to contain display rooms, offices, repair shop and machine shop. Some new equipment will be purchased to outfit the addition.

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THE Bortman Mfg. Co., Chicago, manufacturer of plumbing fittings, has leased the building formerly occupied by the Anhydrous Food Products Co., North Chicago, Ill. The Bortman company is reported to have purchased recently the business conducted by the Brenton-McDonald Machinery Co., and is installing machinery in its newly acquired plant at North Chicago which will soon be in operation.

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THE Illinois Alloy & Mfg. Co. has purchased the plant of the Standard White Metal Co., Elyria, O., and will soon have it in operation for the production of pistons, piston rings, and bearings. Contracts have been awarded for the erection of additions to the present plant. T. H. Reeves, Chicago, is president; V. A. Dorszeski, secretary and treasurer, and E. M. Williams, vice president and general manager. H. E. Walker is plant manager at Elyria and Ray J. Flower is foundry superintendent.

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CONSTRUCTION of a 3-story building has been completed for Phillips & Buttorff Mfg. Co., Nashville, Tenn. The building is of heavy reinforced concrete construction, housing on the third floor a partial storage warehouse and a modern electroplating and polishing shop, on the second floor a storage for hot air furnaces, and on the first floor a sheet metal construction department in which general sheet metal work is done, including work on warm air furnaces. The Phillips & Buttorff company manufactures stoves, ranges, iron goods, tinware, refrigerators, etc.

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EXTENSIONS involving an expenditure of approximately $200,000 are being made by the Auto Specialties Mfg. Co., St. Joseph, Mich., manufacturer of malleable iron castings, automobile jacks, shock absorbers, hardware, etc. The new additions include reinforced concrete buildings, consisting of a hard iron cleaning room, 100 x 100 feet; a foundry, 100 x 200 feet; a core room, 50 x 55 feet; a 20-ton melting furnace and three small sheds for core sand, molding sand and sprue with storage compartments. Most of the equipment needed for the foundry addition has been purchased.

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ATTEMPTS are being made by stockholders of the Mathews Engineering Co., Sandusky, O., a subsidiary of the R. L. Dollings Co. of Ohio, to effect a federal order transferring the property of the company from the present receivership to a group of reorganizers. The reorganization group consists of stockholders and some of the officials of the organization managing the properties since the insolvency of the Dollings company. The Mathews company manufactures farm lighting plants and railroad signal stations.

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PLANS and specifications for new buildings for the Vitro Mfg. Co., Pittsburgh, have been prepared by H. O. Swoboda, Inc., consulting electrical and mechanical engineer, of that city. The new buildings are now under construction.

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EARLE G. BOYER CO., Seventeenth and Cambria streets, Philadelphia, has taken over the works of the Wright Machine & Ball Bearing Co., and has enlarged the plant 500 feet. The company is manufacturing a special line of machinery for the

manufacture of paper and oil drilling machinery.

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THE Milwaukee works of the Nash Motors Co., Kenosha, Wis., which now are being enlarged by the erection of a large building for final inspection, adjustments and testing of four-cylinder passenger cars, will start work immediately on a loading building, 200 x 600 feet, of brick and steel, 26 feet high. The Theodore Stark Co., Milwaukee, has taken the general contract with the exception of the structural steel, which will be furnished by the Worden-Allen Co.

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WORK of removing the pipe machinery manufacturing departments of the Columbus Machine Works, Columbus, Ind., to its new home at Crothersville, Ind., has been begun. The removal will take a week or ten days, and by Oct. 1 it is expected that the department will be in operation in its new location. Other departments of the machine works will remain at Columbus until the first of the year, at which time they will either be discontinued or sold.

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THE steel foundry at the Watertown Arsenal, Watertown, Mass., is soon to be closed according to report from the United States war department. Every effort has been made to secure orders for castings from other government departments but nothing of a nature which would warrant keeping the steel foundry in operation has developed. The work of the ordnance department of the army has gradually fallen off until at present operations are almost entirely composed of experimental models. The foundry is expected to close Nov. 1.

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OPERATIONS will be started at once without waiting to construct a plant, by the Reed Mfg. Co., Inc., New Bedford, Mass., manufacturer of quick adjustable, nonskid tire chains and other automobile accessories. The company was recently incorporated for $50,000, 4,000 shares preferred and 1,000 shares common stock at $10 value. Edward C. Reed is president of the new company and Albert Morde is treasurer. Assembly work will be done at present, the various component parts being purchased.

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DOUBLING of the working force and installation of much new machinery is planned by the Homer Engineering Co., Canton, O. The company is doubling its equipment and is classifying its business into well defined departments. Additional grinding machinery including crankshaft piston pin and piston grinders will be bought. Installation of heavy milling machinery lathes and planers will enable the enlargment of the general jobbing department. Plans also call for the opening of a blacksmith and forging department. Machinery is being installed also for the manufacture of sheet metal into specialties. A die making jig and tool department is run in connection with the manufacturing division. F. A. Carlisle is secretary and general manager of the company.

Sales of Steel Castings Are Lower in August

Washington, Sept. 25.—Steel castings sales in August, totaling 50,515 tons, were the smallest for any month since the department of commerce started compiling these figures in July, 1922, according to figures issued by the bureau of census in co-operation with the Steel Founders' society.

The August figure is 1551 tons below the previous low month of July when 52,066 tons was sold. Sales in August were at 52.1 per cent of capacity as compared to 53.7 per cent in July and 87.6 per cent in June.

Railway specialties gained in August over the July figure, sales totaling 18,332 at 47.9 per cent of capacity as compared to 16,741 tons at 43.7 per cent in July. Miscellaneous castings fell from 35,325 tons at 60.3 per cent in July to 32,183 tons at 54.9 per cent capacity in August.

The accompanying figures are based on reports submitted by 65 identical companies with a monthly capacity of 96,900 tons, representing over two-thirds of the commercial castings capacity of the United States. Of the total capacity, 38,300 tons are usually devoted to railway specialties and 58,600 tons to miscellaneous castings.

1922	Total net tons	Per cent capacity	Railway specialties net tons	Miscellaneous net tons
July	66,166	68.3	32,372	33,794
Aug.	63,416	65.4	21,843	41,573
Sept.	97,919	101.1	56,781	41,138
Oct.	75,709	78.1	34,276	41,433
Nov.	60,899	62.8	22,131	38,768
Dec.	68,889	71.1	28,271	40,618
1923				
Jan.	100,605	103.8	47,879	52,726
Feb.	90,152	93.0	39,845	50,307
Mar.	143,564	148.2	76,409	67,155
April	90,968	93.9	39,610	51,358
May	89,493	92.4	38,788	50,705
June	84,878	87.6	42,773	42,105
July*	52,066	53.7	16,741	35,325
Aug.	50,515	52.1	18,332	32,183

*Two companies with a capacity of 785 tons per month on miscellaneous castings now out of business.

Production in August of Automobiles Gains

Washington, Sept. 25.—Production of automobiles in the United States in August, as announced by the department of commerce was 334,261 passenger cars and trucks. The figures are based upon reports received from 181 manufacturers of which 94 make passenger cars and 115 make trucks. Twenty-eight companies produce both passenger cars and trucks. Passenger car output in August gained slightly over July, while there was a small decline for trucks. The monthly outputs of passenger cars and trucks by months since January, 1921, are shown in the following table:

PASSENGER CARS

	1921	1922	1923
January	43,086	81,693	*223,708
February	68,088	109,171	*254,651
March	130,263	152,959	*319,637
April	176,439	*197,222	*344,475
May	177,438	*232,433	*350,181
June	150,263	268,027	*337,144
July	*165,615	*225,079	*297,257
August	*167,755	*249,460	304,010
September	*144,670	187,661	.....
October	*134,773	*217,493	.....
November	*106,081	*215,284	.....
December	* 70,725	*207,932	.....

*Revised.

TRUCKS

	1921	1922	1923
January	4,831	9,517	*19,533
February	7,830	*13,290	*21,961
March	13,328	*19,919	*34,905
April	18,070	*22,486	*37,718
May	18,070	*23,948	*43,228
June	14,328	*26,171	*40,819
July	*11,132	*21,956	*30,359
August	*13,391	*24,601	30,251
September	*13,975	*19,333	.....
October	*13,144	*21,698	.....
November	*10,480	*21,803	.....
December	8,589	*20,160	.....

Output of Beehive Coke Shows Decrease

Washington, Sept. 25.—The production of beehive coke decreased in the week ended Sept. 15, according to the geological survey. Preliminary estimates based on the number of cars loaded on the principal coke carrying railroads placed the total at 317,000 net tons, against 345,000 tons, the revised figure for the preceding week. The decline was felt in the Pennsylvania-Ohio and West Virginia districts and in southern and western states there was little or no change. The weekly production record follows:

	Week ended Sept.15, 1923(a)	Sept.8, 1923(b)	Sept.16, 1922
Pennsylvania and Ohio	259,000	284,000	85,000
West Virginia	14,000	20,000	9,000
Alabama, Kentucky, Tennessee and Georgia	20,000	18,000	12,000
Virginia	13,000	13,000	8,000
Colorado and New Mexico	6,000	6,000	5,000
Washington and Utah	5,000	4,000	5,000
United States total	317,000	345,000	124,000
Daily average	53,000	58,000	21,000

(a) Subject to revision. (b) Revised from last report.

The production of bituminous coal continues above 11,000,000 tons weekly, but the rate has shown some decline in the past week. Compared with the high point of 11,737,000 tons in the week ended Sept. 22 is estimated at about 11,200,000 tons.

Federal Coal Inquiry Concluded

Commission Recommends Continuous Government Supervision of Industry, and Creation of Special Division of Commerce Commission—Proposes Licensing and Regulation of Interstate Shipments

WASHINGTON, Sept. 26.—What practically amounts to continuous government supervision of the coal industry is recommended by the federal coal commission in its final report, after months of investigation of causes leading to uncertain fuel supplies and recurring strikes. This survey it the most exhaustive ever attempted for the coal industry and covers several hundred typewritten pages.

A special division of the interstate commerce commission is recommended to exercise the administrative powers required for the coal industry. The commission constantly found points of intimate contact between interstate commerce regulation and the coal business.

First among the suggestions to congress, the commission urges that congress make definite provision on a permanent basis for continuing the collection of coal facts, both to instruct public opinion and to guide the correction of abuses.

Licensing of all who resire to ship coal from one state to another or to buy and sell in interstate commerce, whether as operators, wholesalers or jobbers is suggested as the most convenient and practical method of exercising control over the interstate commerce in fuel. Reasonable conditions naturally would be attached to the granting of the license, and violation of them would be the cause for suspending or revoking.

The coal commission, while urging continuous government investigation and publicity for the coal industry, opposes nationalization of the mines. The commission points out that honest and efficient coal operators and dealers have nothing to fear from the government acting through administrative agencies.

The commission believes that the fact-finding service of the United States geological survey, bureau of mines, bureau of census, public health service and other agencies must be put on a permanent and well co-ordinated basis as applying to the coal industry. It points out that the moral influence exerted through publicity is an important but not the only necessary safeguard for the interest of the public.

One remedy for the anthracite branch of the industry, short of price fixing or public ownership, remains in the hands of the government for the protection of the public interest, states the commission. That is the levy of a graded tax on royalties and differential products. The commission says this would not lower the price of coal, but it would provide a public revenue, without increasing the price of coal.

The sum of $600,000 was appropriated by congress for the use of the coal commission in its campaign of fact-finding when the commission was created. About $20,000 to $25,000 will be returned to the United States treasury from this amount. The coal commission closed its affairs at midnight last Saturday night and made no provision for its continuance in its suggestions to congress, although urging permanent fact-finding machinery.

"The 40,000 tons or more of bituminous coal that invisibly reaches our tables every day is of little moment as compared with the coal that makes up the staff of life of our industries," says the report. "The distribution of the year's output of the bituminous mines tells the story: Twenty-eight per cent goes to the railroads, 25 per cent to the boiler houses of factories and mills of all kinds, 15 per cent to the coke ovens and gas plants, 10 per cent to the homes, 7 per cent to steel plants and the same precentage to power plants and street railways, 4 per cent is exported to Canada or overseas, 2 per cent is used at the coal mines for necessary power, and the remaining 2 per cent goes to the seaboard for steamship fuel.

"The commission believes that fact-finding service must now be put on a permanent and well co-ordinated basis. It believes that the moral influence exerted through publicity is an important if not the only necessary safeguard of the interest of the public.

"The commission is equally averse on the one hand to the unnecessary establishment of any new and unattached governmental agency and on priate agency to exercise the necessary governmental responsibility to a haphazard collaboration of exisiting bureaus, whether in any one department, or in several departments. We believe that the logical and appropriate agency to evercise the necessary administrative and quasijudicial functions required for the coal industry already exists in the interstate commerce commission. We recommend the creation for this purpose of a special division in that commission.

"Throughout its investigation this commission has constantly found points of intimate contact between interstate commerce regulation and the coal business. Greater use of river transportation would help to get more coal to market with less coal cars. The river movement of coal, considerable at one time, has been discouraged, if not stifled, by artificial rail rates. The long-continued policy of waterway improvements financed by the national government has been ineffective in operation through unfair competition on the part of the railroads, which can now be directly controlled in accordance with the policy, expressed in the transportation act, 'to promote, encourage and develop water transportation service and facilities in connection with the commerce of the United States.'

"Economy in the use of transportation also demands that the long haul of coal be no longer encouraged by favoring rates, established without adequate regard to the cost of the transportation service rendered.

"While the primary duty to determine a just and reasonable rating lies with the railroad which distributes the cars, the method of rating here suggested involves a principle of sufficient concern to justify investigation of the entire subject by the interstate commerce commission on its own motion. Removal of the peak load which the coal mines impose upon the railroads is a task in which the government needs to co-operate with the industry in seeking relief from irregular operation and overdevelopment.

"As administrator of the public estate which includes 50,000,000 acres of coal lands in the public land states, the federal government, however, has a direct responsibility in restraining overdevelopment, which exists in the West as well as in the East. The leasing law should be amended to give the secretary of the interior full discretion to make his approval of the opening of a new coal mine on the public domain contingent on the showing before the interstate commerce commission that such a mine would serve the public and not involve a needless investment and excessive operation costs.

"In its educational relation to both the general public and the coal industry, the government occupies a well defined field of endeavor. We, therefore recommend that the congress designate an agency to unite with the industry in continuing studies of unemployment, as an effect of irregular operation, of the rate structure, serving as the medium of publicity for rate information in the nonunion fields as well as of all other basic facts on which industrial relations depend.

"While complete autonomy for the widely separated districts may be impracticable, we suggest that the two parties in collective bargaining should work out a system of national negotiation with district agreements, which will avoid standard-cutting wars between districts and secure adequate flexibility to meet necessary district conditions."

New Bonds Forged at Paris Meet

Foundrymen Assembling from Many Countries Discuss Problems Common To All—International Test Bar and Preparation of Molding Sand Receive Important Consideration—Success of Future World Foundry Meets Assured

European Staff Special

PARIS, Sept. 15.—Foundrymen from a dozen of the leading countries of the world assembled in Paris during the second week in September for an international congress held under the auspices of the Association Technique de Fonderie de France. For the first time in history the active presidents of the American, British, French, Belgian, Italian, and Czecho-Slovakian foundrymen's associations were brought together at the same meeting, the secretaries of the American, British, and French associations also being present. In addition to the heads of the various organizations, each country was represented by a large delegation of practical foundrymen. The American corps consisted of about 40 persons; there were over 80 in the British group; Belgium was also equally well represented; and there were sizable parties from Italy, Czecho-Slovakia, Spain, Switzerland, Holland, Sweden and Denmark. French foundrymen attended to the number of nearly a thousand.

For Paris was reserved the honor of assembling the first truly international gathering of casting manufacturers ever held. An even dozen countries were represented. Although the first of its kind, the success of the Paris congress was so pronounced that the idea of holding real international conventions at periodic intervals in the future may now be said to be thoroughly established. During the congress, both Mr. Clamer and Mr. Stubbs stated repeatedly that the foundrymen of the world owe a great debt to their confreres in France, who in the midst of the great difficulties of postwar reconstruction, possessed both the initiative and energy necessary to make a reality out of what hitherto had been merely an idea. French leaders attribute the success to cooperation.

Discuss Technical Problems in English and French

AMONG the subjects discussed at the Paris congress, the important question of an internationally acceptable method of testing cast iron occupied first place. The problem of grading of pig iron sold for export, according to analysis, also was dealt with, and papers were read on a great variety of subjects. Sand handling and preparation attracted considerable attention, and papers also were contributed on apprenticeship problems, malleable castings, foundry costs, aluminum bronzes, magnesium castings, and other subjects. The first session was held Wednesday, Sept. 12, and the last on Saturday morning, Sept. 15.

The congress was held at the Ecole Nationale l'Arts et Metiers in conjunction with a comprehensive exhibition of foundry equipment and supplies which was fully described in the Sept. 20 issue of IRON TRADE REVIEW.

Papers in English

Eight papers were read and discussed at the English-speaking session. They were contributed by members of the Institute of British Foundrymen and American Foundrymen's association. In addition to being presented at the English session, these papers also were translated and read at the French sessions. They were discussed, therefore, by both English and French speaking foundrymen.

The first paper read at the English speaking session was that of Dr. Richard Moldenke, Watchung, N. J., entitled "Testing Cast Iron." In this paper an effort is made to state the American position with reference to the adoption of an international test bar. After reviewing the history of the testing of cast iron, including an outline of the development of the American arbitration bar, Dr. Moldenke said that the problem of testing the quality of iron used must be differentiated from any determination of the strength of the actual casting. For the former purpose he suggested that international agreement might be reached on a single size of test bar. He also recommended that arrangements be made for further study of the whole problem under international auspices.

J. Shaw, Brightside Foundry & Engineering Co., Sheffield, opened the discussion by explaining why the British foundrymen propose three sizes of test bars for thin, medium, and thick castings, respectively. Mr. Shaw presented curves showing how the strength recorded varies with the size of test bar. Iron suitable for thin strong castings showed 13 tons strength on a ⅝-inch bar dropping to 8½ tons on a 3-inch bar; an iron suitable for castings 1½ inches thick containing about 1½ per cent silicon showed 9 tons per square inch on a ⅝-inch bar, 12 tons on a 1½-inch bar, and only 8½ tons on a 3-inch bar. A curve also was exhibited by Mr. Shaw showing the effect of combined carbon on strength indicating that iron with 0.7 per cent of combined carbon is the strongest. The English foundry industry, said Mr. Shaw, has been dominated by engineers for 100 years, and their influence is an important factor when it comes to devising tests which will satisfy British buyers of castings.

Explains Portevin Test

E. V. Ronceray, Ph., Bonvillian & E. Ronceray, Choisy-le-Roi, near Paris, supported the opinion that no test bar can be made to represent the casting. The virtue of the Fremont test, he indicated, lies in the fact that an actual portion of the casting itself is tested. He intimated that the representation of important castings by test bars cast separately is a dangerous practice. As far as meeting the views of engineers is concerned, foundrymen can get their views adopted if they work together throughout the world.

In the French session on the previous day, M. Portevin, engineer, Paris, said most American tests have for their object the determination of the quality of the iron entering into the castings, while French researches have dealt more with the quality of the castings themselves. M. Portevin pointed out it is necessary to know something about the metal in the casting itself, as well as in a test bar, and for this purpose the researches of Fremont are valuable.

In order to make further progress on this problem, and in view of the considerable difference of opinion which now exists, a resolution was introduced and passed at both the opening French session and the English-speaking ses-

sion, suggesting a definite course of action for the future. It was made clear that the congress had no power to more than recommend that each of the associations in the several countries concerned should work along the lines indicated. Tangible results must come from the individual action of the various national associations. The resolution, which was mentioned in these columns last week, was passed unanimously at both sessions and was supported by G. H. Clamer, president of the A. F. A., E. Ramas, president of the A. T. F.; M. Vanzetti, head of the Italian association; Prof. Pisek, president of the Czecho-Slovakian foundrymen, and others. Oliver Stubbs supported the resolution for the I. B. F., but pointed out that no new committee is needed. The existing committees on testing cast-iron of the several national asociations, he suggested, should form the nucleus of any international body. This was agreed to. An informal meeting of members of the various national testing committees, looking toward the formation of an international steering committee, was held on Saturday afternoon, Sept. 15. Preliminary steps were taken at this meeting. William Jolley, Metropolitan Vickers Electrical Co., Manchester, and Walter Wood, R. D. Wood & Co., Philadelphia, also discussed the test bar question.

Sand Problem Dealt With

Next to the testing of cast-iron, the most important question taken up at the English-speaking session was the bonding and composition of molding sands. The official exchange paper from the American Foundrymen's association to the French association by H. B. Hanley, foundry engineer, Rochester, N. Y. dealt with this subject. This paper was entitled, "The Bonding Substance of Molding Sands; Its Composition, Properties, and Tests." H. Holmes, Birtley Iron Co., Birtley, England, read a paper entitled, "The Standardization of Molding Sand Tests." In conclusion the author plead for the international standardization of molding sand tests, using metric units of measurement. A third English paper on sand also was presented, by H. M. Lane, H. M Lane Co., Detroit. It was agreed that on account of their importance and the necessity for making a careful study of the subject, the discussion of Mr. Hanley's and Mr. Holmes' papers should be confined to written communications submitted after the congress adjourned.

An exceedingly interesting paper on mass effect in cast iron was submitted by O. Smalley, Sir W. G. Armstrong, Whitworth & Co., Newcastle-on-Tyne, on behalf of the Institute of British Foundrymen. This paper dealt in a comprehensive manner with the laws of heat transfer and mass action in cooling metals.

In opening the discussion, H. Holmes, Birtley, England, said that the most careful studies and tests could not determine whether the interior of a casting of heavy section is sound or not.

At the conclusion of the English-speaking session, a resolution was passed extending profound sympathy to the Japanese people on account of the recent earthquake, a copy being sent to the Japanese ambassador in Paris.

At the first session in French on Sept. 13, Leon Thomas, Soissons foundry, Establissements les fils de A. Piat, read a paper entitled, "The Foundry Superintendent's Task." This paper criticized the old-fashioned methods which still prevail in many French foundries, but also pointed out that an increasing number of shops are adopting new methods. The author mentioned one plant in which the materials used were handled by conveyors on four different levels, molds being made and poured on two floors.

The discussion centered largely around sand handling questions. Jean Carle, Fonderie Pied-Selle, near Amiens, France, asked what is considered the most efficient device for the mechanical handling of prepared sand without clogging. He also inquired about the construction of overhead sand hoppers. H. M. Lane, in reply, said he prefers to handle the sand in boxes carried by electric trucks, overhead trolleys, etc.

The second French session was presided over by Joseph Leonard, president of the Association Technique de Fonderie de Liege. Professor Pisek, president of the Association de Fonderie Tcheko-Slovaque announced that on his return, a committee would be named to study the standardization of tests for cast iron.

A paper was read by A. Leley, consulting engineer, Paris, on "The Destruction and the Reconstruction of Foundries in the Devastated Regions." The subject naturally aroused sympathetic comments from the representatives of the different nations.

M. Pisek, professor at the Ecole Polytechnique at Brno, and president of the Czecho-Slovakian Foundry association followed with a paper offering a comprehensive study of "Alloys Considered as Material for the Manufacture of Castings for Machinery." The paper first covers considerations and the physical properties of alloys in general. Then the author takes up separately the subjects of cast iron, cast steel, copper alloys, bronze, brass, aluminum bronze, white metal, aluminum and a few other alloys. The following paper on the program, entitled, "A Revision of the Strength Limits Adopted for Cast Iron" was by Lieut. Col. Jaime Coll, of the Spanish army engineer corps, Sevilla, Spain. The author is of the opinion that the present limit of 1.5 kilos per square millimeter for tensile strength (2133 pounds per square inch) imposed by French specifications could be considerably exceeded, since castings are now made in a more scientific manner than in the past.

American Malleable in Europe

J. Cury, vice president of the Association Technique de Fonderies de France, occupied the chair for the session on Friday, Sept. 14.

L. Piedboeuf, foundry proprietor, Herstal-lez-Liege, Belgium, read a paper on behalf of the Association Technique de Fonderie de Liege, on tensile tests and bending tests for white-heart malleable cast iron.

M. Gailly, foundry proprietor at Charleville, Ardennes, France, read a paper entitled, "Making American Malleable Castings in Europe." The author studied American methods in the United States and is at present the only manufacturer of American malleable castings in France. He first expressed his appreciation of the cordial reception he received while visiting the United States. He then pointed out that owing to the difference in the annealing processes in America and in Europe, European malleable cast iron has a pearlitic zone in the center, which reduces the malleability, whereas American malleable contains only ferrite and graphite. Marcel Remy, malleable foundry proprietor, Herstal, Belgium, after recalling that the study and introduction of American methods for the manufacture of malleable iron in France were due to the initiative of the French and Belgian foundry associations, urged the formation of an association of French and Belgian manufacturers of malleable castings. His proposition met with general approbation and an organization meeting was decided upon.

At the final session, on Sept. 15, Prof. Portevin described a new apparatus for studying the behavior of cast iron under changes of temperature. This device was invented by M. Chenevart with the aid of Prof. Portevin's researches. It is said to make possible the study of the thermal properties of cast iron with as much accuracy as steel. It shows the changes in structure which occur at critical points of temperature, such as the beginning of graphitization, the formation of pearlite, etc.

Weakness Noted

In Light Oil Distillates—Sulphate of Ammonia Demand Dull

New York, Sept. 25.—While the bulk of business in pure benzol appears to be going at around 27 cents works, instances of sharp concessions are noted on spot business. There has been shading for some time, but not so pronounced. A Pittsburgh interest recently quoted 24 cents, works, and previously had quoted 25 cents. A lake interest recently sold a tank lot for shipment out of its district at 22 cents, delivered. While these lower prices may be more or less isolated, they indicate clearly an easier tendency.

A corresponding weakness is also noted in certain of the other distillates, including toluol, solvent naphtha, and commercial xylol. Quotations on light oil distillates follows: Pure benzol, 25 to 27 cents works in tanks and 32 cents in drums; 90 per cent benzol, 23 to 25 cents in tanks and 30 cents in drums; toluol 28 to 30 cents in tanks and 35 cents in drums; solvent naphtha, 25 to 27 cents in tanks and 32 cents in drums; commercial xylol, 27 to 29 cents in tanks and 34 cents in drums. Naphthalene continues unchanged at 8 cents works in flakes and 9 cents for balls, with demand still somewhat restricted.

While trading in light oil distillates for chemical purposes has improved since the first of the month, this improvement has been slight. The dye manufacturers' normally the largest consumers of industrial benzol, have not as yet come into the market and there are no definite assurances that they will in the near future. As there has been a substantial increase in the amount of motor fuel produced, the accumulation of distillates is not heavy as might otherwise be expected.

Continued dull demand for sulphate of ammonia has caused the domestic market to ease off slightly, to a nominal range of $2.95 to $3.00, f.o.b. plant. No change, however, has as yet been made in the export market which is quoted $3.30 to $3.35 port, in double bags, but such a development would not prove surprising in some quarters. The Japanese demand, which had been expected to come into the market around the latter part of this month, will in all likelihood be set back sometime owing to the recent earthquake disaster. Fall buying by domestic consumers is not expected to set in much before the latter part of next month.

Coke Oven By-Products

Spot*

Per Gallon at Producers' Plants in Tank Lots	
Pure benzol	$0.25 to $0.27
Toluol	0.28 to 0.30
Solvent naphtha	0.25 to 0.27
Commercial xylol	0.27 to 0.29
Per Pound at Producers' Plants	
Phenol	$0.26 to $0.28
Naphthalene flake	0.08
Naphthalene balls	0.09
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$3.00 to $3.05
Contract	
Pure benzol	$0.27
Toluol	0.30
Solvent naphtha	0.27
Commercial xylol	0.29
Per Pound at Producers' Plants	
Phenol	$0.28
Naphthalene flake	0.08
Naphthalene balls	0.09

*Spot distillates are subject to shading.

Delaware River Bridge To Use Much Steel

Bids were opened Sept. 19 by the Delaware river bridge joint commission, Widener building, Philadelphia, for wire cable and other materials for the Philadelphia and Camden bridge. The cables are to be of parallel wire construction, each being composed of 18,666 separate galvanized wires, 0.196 inch in diameter and the total weight of this wire will be 13,500 pounds. The contract also is to include 50,000 feet of suspender rope to form the erection foot bridges required for building the cables. In addition, there will be 90 tons of steel castings, 6000 pounds of high tensile bolts, 15 tons of structural steel shins and 15 tons of cast iron separators. The steel castings include 244 shoes each weighing 500 pounds for adjustment of the cable strands to the eyebar systems at the anchorages; also eight collars, four of which are 8000 pounds and four 3800 pounds each, for holding the cable strands in position near the anchorages at the points where the strands will flare out from the solid cable to their points of attachment in the bridge. The castings may be made of open-hearth or electric furnace steel and the specifications require a tensile strength of 65,000 pounds per square inch, a yield point of 35,000 pounds per square inch, elongation of 22 per cent and reduction of area, 30 per cent. All castings are to be annealed.

The plant and stocks of the Knickerbocker Mfg. Co., Belleville, N. J., have been purchased by the United States Cutlery Co., recently incorporated for $300,000 to manufacture stainless steel cutlery.

Iron and Steel Shortage Reported Worldwide

Washington, Sept. 25.—A world shortage of iron and steel products is seen by department of commerce investigators from reports from principal producing and consuming countries. The domestic demand in the United States has left little for export, even at the record rates of output. The figures for the first half of 1923 show that the United Kingdom has shipped a tonnage equal to more than 50 per cent of its steel ingot production, according to M. H. Bletz of the iron and steel division of the department of commerce.

He says that it is conceded domestic demand, except in the United States and Germany, and to a certain extent in the United Kingdom, France and Belgium, has fallen off. New developments of resources which would require the use of vast quantities of steel have been held up. Replacements for and repairs to, existing equipment have been kept at a minimum.

The iron and steel trade of the United Kingdom, for the first half of 1923, was more widely distributed and more evenly divided among the hemispherical groups of countries. In this period practically five-eighths of the total American export tonnage of iron and steel products went to Canada, Cuba, Mexico and Japan.

July figures indicate that the rate of output for the first half of 1923 in all the countries is being maintained. The production of pig iron and steel ingots for July is reported as follows: United States, 3,678,334 gross tons of pig iron and 3,515,966 of steel ingots; United Kingdom, 655,100 of pig iron and 624,300 of steel ingots; and France, 430,300 of pig iron and 393,200 of steel ingots.

Belgian production for the first part of 1923 amounted to approximately 475,000 gross tons of pig iron and 485,000 tons of steel, while the corresponding figures for Luxemburg were 320,000 and 172,000 tons, respectively.

The data that have been reported for Germany show that for the first five months exports of iron and steel more or less balance imports. It is believed that a great deal of the iron and steel produced in Germany in 1922 and the first half of 1923 has gone into improvement and re-construction of industrial works, including iron and steel plants.

A decrease of 57 is noted in the industrial plants of this city for the week ended Sept. 18, according to Detroit Employers' association, which reports a total of 215,830 employes in 79 plants. This compares with an increase of 5381 for week ended Sept. 11, and the peak of 229,279 employed on June 2, 1923.

Works Protest Advances In Steel Rates

Washington, Sept. 25.—Protest to the interstate commerce commission on schedules filed by the Pittsburgh & Lake Erie railroad, which it is estimated, would advance rates on iron and steel from 31.2 to 60 per cent, has been made by the Jones & Laughlin Steel Corp. Suspension of the rates, which were to become effective Oct. 7, also is asked The Jones & Laughlin company maintains that these advances are unnecessary to clear fourth section violations of the aggregate rate rule.

The Jones & Laughlin company regards the filing of these rates apparently justified by the road in complying with the decision of the interstate commerce commission in the complaint of the American Shipbuilding Co. against the director general of railroads, which refused reparation on rates between intermediate points that were said to be out of line with the through rates.

No such violations, the Jones & Laughlin company holds, were found in the rates from Woodlawn, its shipping point near Pittsburgh, to Cleveland, Akron, Canton, Massillon, New Castle or Youngstown, the points between which the so-called short haul rates on iron and steel materials, in the period covered by the shipbuilding complaint, were generally out of line with the aggregate rule. The combinations from Woodlawn to the cities mentioned, it is maintained, were all higher than the through rate. The company asserts there is no need for any advance to preserve rate relationships between points in iron and steel producing districts.

The American Bridge Co., the American Sheet & Tin Plate Co., the American Steel & Wire Co., the Carnegie Steel Co., the Lorain Steel Co., and the National Tube Co., with plants in western Pennsylvania, Ohio and West Virginia have protested against all the tariffs in which the rates seek to remove the fourth section violations found in the decision in the shipbuilding case. Their shipping points cover practically the whole territory in which the rates involved in the shipbuilding case apply.

Prefer American Jobs to European Turmoil

Detroit, Sept. 25.—Laboring men from Europe who receive good wages in this country are in no hurry to pay their native land a visit while the clouds of war are lowering. Agents of the leading steamship companies declare that the third-class passenger business has fallen perceptibly since the Italian-Greek situation became acute. At this season of the year European laborers ordinarily decide to return for a few months, until after the holidays. Recently three ships left the Atlantic coast for Europe with no third class passengers.

Influx of new labor since July 1 has been large at this port, but it has been mainly from England and consists of skilled and semiskilled mechanics in the metal industry. Many of the men are employed in the automotive industry.

Steel Industry Second in Wage Increases

Washington, Sept. 25.—Only a slight decrease in employment is shown in the August figures of the bureau of labor statistics of the department of labor, gathered from 51 industries, as compared with July. This small decrease is said to reflect the end of the vacation season. The preliminary figures, which are from 6589 representative establishments covering 2,279,659 employes in the 51 industries, show a decrease of 0.2 per cent from July, but an increase of 0.7 per cent in total amount paid in wages, and an increase of 0.9 per cent in average weekly earnings.

These establishments in July reported 2,284,642 employes and total payrolls of $59,564,865, and in August the total payrolls in one week of the month were $59,967,607.

Thirty-three industries gained in employment this year, car building and repairing leading with 59.2 per cent in employment in the year, followed by foundry and machine shop products, electrical machinery, apparatus and supplies, woolen goods and iron and steel. The greatest decrease in employment was 18.1 per cent in the automobile tire industry.

Iron and steel ranks second in the list of industries in which total wages increased most in August. The pottery industry is first, followed by iron and steel, flour, women's clothing and boots and shoes, in the order named. The greatest decreases in total wages paid were shown in machine tools, steel shipbuilding, shirt and collars and automobile tires.

Comparing figures from the 6589 establishments for July and August, increases in employment are shown in 22 of the 51 industries, and increases in total wages paid in 21 industries.

Comparing August, this year, with August, 1922, in 2593 establishments of 42 industries there was an increase of 15.2 per cent in employment in the year, an increase of 27.8 per cent in total wages paid, and an increase of 11 per cent in average weekly earnings.

A combined total of reports from the 51 industries shows that 78 per cent of these establishments were working full time, 21 per cent part time and 2 per cent were closed.

Reports of the interstate commerce commission show an increase on June 15 in all employes on class I railroads, excluding executives and officials, of 0.9 per cent as compared with May 15, and an increase of 13.5 per cent as compared with June 15, 1922.

Bureau Analyzes Dollar Purchasing Power

Washington, Sept. 25.—An interesting study by the United States bureau of labor statistics of the purchasing power of the dollar from 1913 to 1923 is published in the September issue of the *Monthly Labor Review*. The average person, although realizing that the buying power of money has greatly diminished since the period prior to the outbreak of the war, nevertheless has no means of measuring the extent of the decrease. In making this study, which enables one to visualize these changes, the index numbers of wholesale prices of various groups of commodities, compiled each month by the bureau, have been used as affording a reliable barometer of composite price movements and the average purchasing power of a dollar in 1913 forms the basis of comparison.

The purchasing power of the 1913 dollar varied widely, at different periods, between the different groups of commodities. For all commodities combined, however, it was equal to more than a dollar in most of 1914 and 1915 but after that it declined steadily in value until May, 1920, when it equaled only 40 cents. In the second half of 1921 and the first half of 1922 it had advanced above 70 cents but since that time it has again declined and stood at 65 cents in June, 1923. There were even more extreme fluctuations in the dollar's buying power in the case of building materials and of bituminous coal and coke, which are shown separately on account of their importance.

In a recent report to the department of commerce from Matanzas, Cuba, Vice Consul J. V. Whitfield states that imports of barbed wire in his territory during the first six months of 1923, were three times greater than during the entire year of 1922. He states that the wire fence is replacing the stone fences formerly used in Cuba.

Obituaries

GORDON BATTELLE, director of the American Rolling Mill Co., Middletown, O., and well known in iron, steel, coal, zinc and mining industries, died Sept. 21 in Columbus, O. His father was Col. John Gordon Battelle, a pioneer in the steel industry, former president and owner of the Columbus Iron and Steel Co., and an official of the American Rolling Mill Co.

Gordon Battelle was educated at Virginia Military institute and Yale and soon after completing his educational training became identified with the steel industry. At the time of his death he was a director of the American Rolling Mill Co., and the Inland Steel Co., Chicago. He was president and treasurer of the International Steel Products Co. and of the International Derrick & Equipment Co., Columbus. He was also a director and official of various mining companies. Mr. Battelle was a member of the American Iron and Steel institute as well as various social and fraternal organizations in Columbus.

Charles E. Lyman, head of the Lyman Gun Sight Works, Middlefield, Conn., died at his home in that town, Sept. 18, aged 66 years.

Adam Karr Jr., 32 years old, son of Adam Karr, president of the Karr Range Co., Belleville, Ill., died suddenly in California on Sept. 20. Mr. Karr Jr., was a traveling salesman for the company.

Charles R. Transue, superintendent of the Transue & Williams Steel Forging Corp., Alliance, O., died in that city recently at the age of 53 years. He was superintendent of the company since its organization.

Henry F. Anderson, president and founder of the Anderson Roe Co., Ltd., Winnipeg, Manitoba, died recently in that city at the age of 61 years. He was widely known in the agricultural implement field and for many years was a Canadian representative of the McCormick Harvesting Machine Co.

Fred E. Signer, for the past three years affiliated with the Butterworth Judson Co., chemical dealers, 30 Church street, New York, died at his home in Bronxville, N. Y., recently at the age of 54 years. He was vice president of the Synthetic Organic Chemical Manufacturers association.

Antoine Jean Langelier, president, treasurer and general manager of the Langelier Mfg. Co., Arlington, R. I., builder of machinery, was found dead in his room in a New York hotel, Sept. 19, where he had gone on a business trip. He was a designer of special machinery and had devoted much of his efforts to hot and cold-swaging of all kinds of metal. Mr. Langelier, who was 64 years old, was one of the founders of the company with his father.

George Maclagen, president and treasurer of the Garvin Machine Co., New York, died recently at his home in Mountain Lakes, N. J., of apoplexy. Mr. Maclagen was born in Canada, Oct. 2, 1858. In 1901, he became affiliated with the Garvin Machine Co. as treasurer, a position he held until the time of his death. Upon the death of B. K. Garvin last year he also assumed the duties of president. Mr. Maclagen was a member of the New York Machinery club.

Paul J. Rainey, a director of W. J. Rainey, Inc., New York, and a son of the late William J. Rainey, Cleveland, died at sea Sept. 18 on the steamship Saxon, enroute to Capetown. Death resulted from a stroke of paralysis and burial was made at sea. Mr. Rainey was known principally as a traveler and explorer. He hunted with both camera and gun and his exploits won him international renown. At the time of his death, Mr. Rainey was on his way to his ranch at Mairobi, British East Africa. He operated a 30,000-acre cotton plantation near New Albany, Miss. Mr. Rainey was a member of numerous New York clubs and of the Union club, Cleveland. He was born in Cleveland 46 years ago.

See Far East as Best Industrial Market

Pittsburgh, Sept. 25.—That the Far East, particularly China and Japan, is the most fertile foreign field for American industry is the statement of Assistant Trade Commissioner R. J. Phillips, attached to the Shanghai, China, division of the department of commerce. Mr. Phillips left Pittsburgh Sept. 21 en route to his post, after interviewing leaders of local major industries, concerning the expansion of their trade in the Far East. He recently was appointed assistant trade commissioner, but has lived in the Orient several years as representative of a New York company.

While China and Japan are the outstanding markets in the foreign field for American industry, in Mr. Phillips' opinion, there is an obstacle in the unstable government and financial uncertainty of the former country which must be removed before American capital will display particular interest in that empire. Japan, always a good customer of the United States, will draw strongly upon American industry, and particularly the steel, lumber and finished steel industries with an increased demand for cement, building materials, structural steel and allied products for rebuilding the devastated areas, he believes.

Anticipated 8-Hour Day by Three Years

Changes now being made by iron and steel plants in Ohio toward establishing the three-shift system do not affect the American Rolling Mill Co., Middletown, O., as the company installed the system three years ago. George M. Verity, president of the company, says:

"You can appreciate how much the American Rolling Mill Co. has saved itself by not having to follow this force program at this time.

The whole program was worked out three years ago and we will not be up against any of the increased cost referred to.

"Neither will we have any interruption in operation because of shortage of labor or dissatisfaction on the part of those who do not like the readjustment in wages as it affected them."

Emigration Declines

Washington, Sept. 25.—The new fiscal year started out with little change in the net gain in immigration from the figure for July, 1922, according to statistics just compiled. Immigrants in July numbered 33,082, as compared with 41,241 in July, 1922. The emigrants this July totaled 4097, as against 14,738 last year. The net gain in July was 28,985, compared with 26,503 in July, 1922. The decrease in the number of emigrants is attributed in some cities to the strained relations existing between European countries and the supposed danger of further hostilities. The following table shows the alien movement by months:

	Immigrants	Emigrants	Net gain
July, 1922	41,241	14,738	26,503
August	42,735	10,448	32,287
September	49,881	7,527	42,354
October	54,129	7,192	46,937
November	49,814	7,077	42,737
December	33,932	8,157	25,775
January, 1923	27,773	4,232	24,541
February	29,927	2,794	27,133
March	42,888	3,610	39,278
April	52,433	4,509	47,924
May	809	5,752	47,057
June	44,166	5,414	38,752
Fiscal year	522,919	81,450	441,469
July	33,082	4,097	28,985

Heavy Buying of Tools Lacking

Not Much Improvement Is Seen in Market Situation— Automobile Manufacturers Are Principal Buyers—Sales of Used Machinery Curtailed by Flood of Machinery from Auction Sales—Crane Demand Slightly Less

SALES of machine tools and shop equipment continue to show slight increases in a number of the leading distributing centers, although business in the New York district is reported as being extremely dull.

The railroads are not showing a great amount of activity. Sales are reported to the Southern Pacific, the Delaware, Lackawana & Western, and the Nickel Plate. It is understood that the Baltimore & Ohio is also buying. Among industrial buyers are included the Pittsburgh Crucible Steel Co.; the Buyers Machinery Co.; the American Locomotive Co.; the American Axle & Spring Co., Cleveland; the Rockford Lathe & Drill Co., Rockford, Ill.; the American Maize Products Co., Robey, Ind.;

Little Buying Is Being Done by the Railroads

NEW YORK, Sept. 25.—At no time in many weeks has machine tool buying in this district been as sluggish as at present. Included in recent machine tool buying is a list of several machines for the department of purchase, this city. Orders involved three engine lathes, a planer, a universal radial drill, a cold saw, a cylinder grinder, a plane grinder, a drill press, a portable grinder and a speed lathe. The equipment is for a motor repair shop. The Southern Pacific railroad 165 Broadway, has closed on two axle lathes. these being in addition to the one reported recently, and is expected to make further purchases shortly. The Delaware, Lackawanna & Western has closed on two engine lathes and the Pittsburgh Crucible Steel Co. on a 12-inch crankshaft lathe. The Byers Machine Co. has closed on a 44-inch boring mill, and it is understood that the Baltimore & Ohio is making some purchases.

Sales Flood Market

BOSTON, Sept. 25.—New England's used tool market has been flooded during the past month with auction The demand for new machine tools during the past week has been at the low ebb of the month. One of the railroads has bought four or five tools, but its former list has been greatly cut. A Springfield, Mass., manufacturer of automobile accessories is working on a list totaling $100,000. The machine tool exhibit held during the week at New Haven stimulated sales throughout Connecticut, and according to one dealer something over 20 have been sold.

Large Lists Absent

PITTSBURGH, Sept 25.—As has been the case for some weeks past, big lists are absent from the machine tool market but individual tool inquiries are somewhat more plentiful and on that account sellers are more encouraged and optimistic concerning the future.

In the crane market, one interesting sale has taken place; the Carnegie Steel Co. closed on 14 jib cranes with the Whiting Corp. The Northern Engineering Works, Detroit, has taken an order for a 3-ton electric overhead traveling crane from the Lorain Steel Co., Johnstown, Pa.

Inquiries Fall Off

CLEVELAND, Sept. 25.—A large rotary drilling machine was sold to a Chicago manufacturer and eight oil gear control pumps were purchased for use in experimental work. The largest portion of the equipment being purchased by the Eaton Axle & Spring Co., Cox Bumper division, Cleveland, was closed during the week. Joseph Hyman & Sons, Philadelphia, have purchased over $20,000 of power presses from the Standard Parts Co., Cleveland, and will dispose of them in this district.

Stock Market Continues

CHICAGO, Sept. 25.—Buyng of machine tool equipment at Chicago continues as slow as was the case during the summer. Expected activity during the fal. keeps its inquiry active and may buy some additional equipment before the end of the year. The Ford Motor Co. is building several plants in the West, but all its machine tool equipment is placed at Detroit. The Rockford Lathe & Drill Co., Rockford, Ill. has bought three milling machines, two radial drills and a horizontal boring mill. The American Maize Products Co., Robey, Ind. has purchased a second-hand 6-foot radio drill and a 60-inch boring mill.

Expect Increased Buying

MILWAUKEE, Sept. 25.—The excessively cautious attitude of many concerns in the foundry and machine shop trade is gradually passing and signs are

Crane Awards and Inquiries of the Week

Orders Placed

One 30-ton fixed gantry crane, 37-foot span for the New York Central railroad, to an eastern builder.

One 10-ton electric overhead crane, 33-foot span, to the Shaw Electric Crane Co.

One 10-ton electric crane, 40-foot span, for the Monahan Stone Co., Newark, to the Shaw Electric Crane Co.

One 60-ton, 4-motor overhead crane, with 10-ton auxiliary, for Viele, Blackwell & Buck, New York, for operation in Canada, placed with a Canadian builder.

One 15-ton electric crane, for the General Electric Co. for shipment to Brazil to the Whiting Corp.

One locomotive crane for the Paterson Parchment Paper Co. of Paterson, N. J., for a plant to be erected at Bristol, Pa., to an unnamed builder.

One 3-ton, 3-motor electric traveling crane for the Lorain Steel Co., Johnstown, Pa., to the Northern Engineering Works, Detroit.

14 electric jib cranes for the Duquesne works of the Carnegie Steel Co., to the Whiting Corp.

One 30-ton locomotive crane for the Missouri Portland Cement Co., placed with the St. Louis district office of the American Hoist & Derrick Co.

One 25-ton locomotive crane for the Dells Paper & Pulp Co., Eau Claire, Wis., to the American Hoist & Derrick Co.

One 2-ton handpower crane, 20-foot span, for the Excel Foundries, Lebanon, N. J., to the New Jersey Foundry & Machine Co.

One 25-ton used Browning crane, 50-foot boom, to the Whitehead Construction Co., Flint, Mich., to Philip T. King, 30 Church street, New York.

Two 20-ton locomotive cranes for the General Contracting Co., Pittsburgh, to the Browning Co.

beginning to be felt of a willingness to go ahead with additions to plants or equipment, some of which have been contemplated since late last spring. These were held up either by the effect of the disturbed conditions in this country and throughout the world, and also by the shortage of labor. Both situations are shaping themselves more favorably. It is questionable if much of the contemplated work will be started much before the early part of 1924, although some of it at least is assured presently. There is moderate buying of metalworking machinery now, although there is no snap to it and volume is light.

Tool Demand Improves

TORONTO, Ont., Sept. 25.—Further improvement is reported in the demand for machinery and machine tools in the Canadian market. Industrial concerns are entering the market for equipment, but it is apparent that the greater part of present buying is for replacement purposes, although there is some demand and considerable inquiry for equipment for new works. The automotive industry is furnishing the chief demand for machine tools and dealers in both Toronto and Montreal districts say that they are continually closing orders for equipment for automobile manufacturing plants. Orders for equipment for garages and auto repair shops are fairly numerous. The electrical development trade also is furnishing a good demand for equipment and Canadian builders have closed orders running into several millions of dollars on this account during the past two or three months with a considerable demand still in prospect. The pulp and paper industry is furnishing a strong demand for equipment and during the week the Port Arthur Shipbuilding Co., Port Arthur, Ont., received an order for some $70,000 worth of equipment for the new plant under construction for the Great Lakes Pulp & Paper Co. The need for machinery from the mining fields of Canada is showing improvement and dealers report a good volume of inquiry from this source. Woodworking tools are moving freely and dealers look for continued demand for these commodities. Small tools are in steady demand with users buying both for present and future needs.

The Ottawa River Power Co., 145 St. James street, Montreal, Que. is in the market for power and transmission machinery. The Ford Motor Co. of Canada, Ford, Ont., is expected to purchase special machinery in the near future for the new heat treating plant now under construction at a cost of $500,000. The McMullen-Pedkins Co., Ottawa, Ont., is building a machine shop and will soon be in the market for machinery.

The Manitoba Rolling Mill Co., Ltd., is in the market for a 5-ton electric crane, 50-foot span, 3 motor, 220 volt, 60 cycle, alternating current, either new or second-hand.

Bulletin Board

Requests for Equipment and Supplies, Trade Literature, Etc., Made Through IRON TRADE REVIEW

W. D. Lovell, 1415 Eight street Southeast, Minneapolis, wishes to buy second-hand equipment for a contract at Houghton, Mich., requiring excavating and crushing of rock. The equipment required is as follows: two jack hammers requiring about 50 cubic feet of air per minute; one air compressor delivering 100 cubic feet per minute at from 80 to 100 pounds; 1 boiler, one small rock crusher; one rock loader and air hose.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

East of the Mississippi River

NEW HAVEN, CONN.—The Atlantic Saw Mfg. Co., Inc., has been incorporated by George D. Bowers, William S. Smith and Thomas F. Maher Jr., with $50,000.

WATERBURY, CONN.—The Hamilton Beach Mfg. Co., Inc., has been incorporated to make metal goods with $50,000 capital by Edward O. Goss, John H. Goss and Leavenworth P. Sperry.

PERRY, GA.—The Clinchfield Portland Cement Corp. will construct a $3,000,000 plant near here for the manufacture of cement with capacity of 4000 barrels a day.

INDIANAPOLIS, IND.—Michael Seyfried has opened a shop at 3320 East New York street to manufacture sheet metal products.

CHICAGO—Bids will be taken soon for a 1-story factory, 112 x 150 feet, at the northwest corner of Adams street and California avenue for J. D. Wallace & Co., machinery manufacturer at 1401 West Jackson boulevard.

CHICAGO—Kamarek, Greaves & Co., 2628 Wilson avenue, was incorporated for $75,000 to manufacture and deal in machinery and to act as consulting engineer, by Frederick T. Greaves, Gustav Komarek and Herman W. Holzboog.

DECATUR, ILL.—The Decatur Sealing Corp., 1226 Garfield avenue, was incorporated for $150,000 by R. O. Farrell, Jess Halsted and H. M. Cassidy to manufacture, buy and sell and deal in tools, dies, supplies and equipment.

NEW BEDFORD, MASS.—Installation of additional equipment and extensions and alterations to its plant are being planned by the New Bedford Welding & Machine Co., 1 Rodman street.

DETROIT—Detroit Aero Metals Co., 657 Lycaste avenue, will soon start work on the construction of six new units to the plant for the manufacture of aluminum, glucinum, potassium and fertilizer.

GRAND RAPIDS, MICH.—The Honn-Brown Co., Inc., has been formed to manufacture equipment for automobiles, including wheel removers, by J. W. Brown, formerly with the Couple Gear Co., and P. Honn, formerly of the Perkins Machine Co., Grand Rapids.

PONTIAC, MICH.—The general contract for a $500,000 2-story reinforced concrete building for the Wilson Foundry & Machine Co., South Saginaw street, has been let to the Bryale Construction Co.

GORHAM, N. H.—Contract will be let soon on a new 2-story high school costing about $100,000 in which manual training equipment will be needed.

NEWARK, N. J.—A 1-story factory will be built for the Utility Lock Washer Co., 140-44 Pennington street, together with a 1-story powerhouse.

NEWARK, N. J.—The Utility Lock Washer Co. is having plans prepared by Monks & Johnson, Boston, architect, for the erection of a 1-story factory, also a pewer plant.

BUFFALO, N. Y.—Erection of a 20 x 80-foot addition is being planned by the Art Work Shop, 828 East Ferry street, manufac-

turer of metal products. New equipment will be purchased.

ASTORIA, N. Y.—A $100,000 factory addition, 150 x 200 feet, two and three stories, is being planned by J. Polachek Bronze & Iron Co., 480 Hancock street.

BROOKLYN, N. Y.—Plans are being prepared by John D. Biggins Co., Inc., for a 1-story foundry addition.

BUFFALO, N. Y.—The Frontier Steel Erection Corp. was incorporated for $100,000 by E. C. Krumheur, N. A. Jerg and F. E. Houck.

BUFFALO, N. Y.—Crane-Schiefer-Owens was incorporated recently for $30,000 to manufacture machine tools, by R. L. Crane, F. W. Schiefer and J. F. Owens.

GENEVA, N. Y.—The Premier Mill Corp. was incorporated with an active capital of $25,000 and 2000 shares of preferred stock, $100 each, and 3000 shares common no par value, to make machinery, by B. M. and M. J. and S. K. Nester.

JAMAICA, L. I.—Installation of equipment for plating copper, nickel, etc., is being planned by Joseph A. McCarthy, 14716 Jamaica avenue, manufacturer of heating apparatus.

NEW YORK—The Yonkers Star Structural Steel Works was incorporated for $10,000 by J. D. and I. Cochrane and R. C. Richards.

NEW YORK—To manufacture flexible metal couplings, the Sundh Mfg. Corp., 342 Madison avenue, was incorporated. The plant at Hastings, N. Y., will be operated shortly.

NEW YORK—A site for a new plant has been purchased by the Jackwill Mfg. Co., 615 East 134th street, manufacturer of pipe nipples and kindred engineering products.

NEW YORK—Delway Heaters, Inc., has been incorporated for $250,000 by J. A. Barrett, A. H. Haaren and A. Wallander to manufacture oil burning heaters and others heating equipment.

SARATOGA SPRINGS, N. Y.—Plans are being made by the Baker Mfg. Corp., manufacturer of gray iron castings for the addition of about $45,000 of equipment.

SYRACUSE, N. Y.—Automotive equipment will be manufactured by the recently incorporated Morse Mfg. Co., 325 West Fayette street, capitalized at $50,000. J. M. Morse is president.

TOTTENVILLE, N. Y.—Contract has been awarded to Levering & Garrigues Co., for the construction of a 1-story, 75 x 300-foot steel and concrete building for the plant here of the Tottenville Copper Co., to replace the structure damaged by fire earlier in the year.

WINSTON-SALEM, N. C.—Plans are being prepared by the Blue Ridge Mica Co. for the erection of a plant, estimated to cost $275,000, including equipment.

CANTON, O.—The American Mine Door plans the erection of an addition to its engine room costing $8000.

CLEVELAND.—Metal Stamping & Mfg. Co. was incorporated for $150,000 by John H. Schultz, and Q. H. Findley.

CLEVELAND—The Pioneer High Speed Knife Co. has been organized to manufacture machine knives, by J. J. Zoffer and C. G. Willis. The company leased the building formerly occupied by the Great Lakes Welding Co.

TIFFIN, O.—The Vannette & Sons Co. will open a factory here soon to manufacture a new type of lawn mower.

TOLEDO, O.—Another addition to the Toledo Chevrolet Co., manufacturer of motor cars, will be under construction soon, according to present plans.

BRISTOL, PA.—Bids have just been closed on a boiler house for the Rohm & Haas Co. Charles A. Bratchley is architect.

CHESWICK, PA.—The local plant of the Peerless Sand Co., Oliver building, Pittsburgh, which recently was damaged badly by fire, will be rebuilt soon, according to plans. The loss was estimated at $90,000.

GROVE CITY, PA.—Organization of the Rainey Tool Co. is being effected to take over the plant of Rainey Bros., manufacturer of mechanics' tools.

LANCASTER, PA.—Bids are in on the erection of a new 2-story machine shop, 60 x 100 feet, for the Barry & Zechner Co., East Fulton street.

LEWISTON, PA.—Extensions to its electric light plant, costing $75,000, are planned by the Lewiston & Reedsville Electric Railways Co.

PHILADELPHIA—Veron F. Newton starts work shortly on a $40,000 factory building. J. E. Bullock is architect.

PHILADELPHIA—Bids will be received shortly on the erection of a factory building for E. E. Hollenbach, Inc. J. E. Bullock is architect.

PHILADELPHIA—The Tank Car Corp. of America has awarded the contract for the erection of a steel and concrete building, 75 x 200 feet, to the Metz Structural Steel Co.

PHILADELPHIA—The Spring City Foundry Co. was incorporated for $225,000 to manufacture iron castings by F. R. Hansel, J. Vernon Pimm and E. M. McFarland.

PHILADELPHIA—The Pennsylvania railroad will break ground shortly for the erection of additional buildings at its new car repair shops at Enola, Pa.

PHILADELPHIA—Work will be started shortly by the Philadelphia & Reading railroad on a $70,000 shop, to be erected in Huntington, east of Richmond.

PHILADELPHIA—A $30,000 garage and service station will be erected here by Wager & Kartles. The general contract has been awarded to J. E. Fisher.

PHILADELPHIA—The Philadelphia & Reading railroad has awarded the general contract for the erection of a $5000 addition to its battery plant at Broad and Lehigh streets, to the Fred A. Havens Co.

PHILADELPHIA—A site for a new factory has been acquired at Hunting Park avenue and Fox street by the Metalweld Service Corp., 1435 North Thirty-first street, operator of a welding and general metal works.

PHILADELPHIA—Plans for the proposed $5,000,000 plant of the Ford Motor Co. here have been completed by Albert Kahn, architect, who is now taking bids on the structural steel work. The buildings will include an assembling plant and a power house.

PITTSBURGH—A 6-story and basement warehouse costing approximately $700,000 is to be built for the John Eichleay Jr. Co., steel fabricator.

PITTSBURGH—American Steel Band Co., 886 Progress street, has filed plans for the construction of a 1-story plant on property recently acquired.

SCOTTDALE, PA.—Work was started a short time ago on a new building here to be known as Plant A of the United States Cast Iron Pipe & Foundlry Co. The new building is to be of sheet steel 60x320 feet in dimension, and will replace the structure recently badly damaged by fire.

SCRANTON, PA.—The Scranton Supply & Machinery Co. has been organized to handle supplies, machinery and tools for machine shops, mines and railroads. T. M. Voyle heads the organization at 634-48 Wyoming avenue.

SHARPSBURG, PA.—A $50,000 factory ad-

Business Changes Recently Announced

THE sales and contracting department of the Truscon Steel Co., Detroit, will be removed shortly after Oct. 1 to th ecompany's new 4-story building at Congress and Wayne streets. At present these departments are quartered in the Krolik building on East Jefferson avenue.

* * *

The Cutaway Harrow Co., Inc., Haddam, Conn., has changed its name to the Clark Cutaway Harrow Co., Inc.

* * *

Offices of the International Chain & Mfg. Co., have been moved from 1207 Vine street, to 1015-19 Chestnut street, Philadelphia.

* * *

C. M. Decker, Philadelphia sales representative of the Geo. T. Ladd Co., manufacturer of water tube boilers, has moved his office from the Land Title building to 504 Franklin Bank Building, that city.

* * *

Joseph T. Ryerson & Son, Inc., Chicago, moved its Milwaukee office from 731 to suite 818 Wells building, 120 Wisconsin street.

* * *

Osborne Engineering Co., architectural and engineering company, will move its offices Oct. 1 from 2848 Prospect avenue to 223-227, Euclid and Seventy-first street building, Cleveland.

* * *

Offices of the Michigan Steel Corp., Detroit, have been removed from the First National Bank building to the new structure on Mill street in conjunction with the plant of the company at Ecorse, Mich.

Warehouse Steel Prices

Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.515c
Buffalo	3.55c
Chicago	3.20c
Cincinnati	3.40c to 3.50c
Cleveland	3.36c
Detroit	3.35c
Los Angeles	4.30c
New York	3.54c
Philadelphia	3.55c
Pittsburgh	3.15c
San Francisco	3.75c
Seattle	4.10c
St. Louis	3.35c
St. Paul	3.45c

IRON BARS

Boston	3.515c
Buffalo	3.50c
Chicago	3.20c
Cincinnati	3.40c to 3.50c
Detroit	3.35c
New York	3.54c
Philadelphia	3.55c
St. Louis	3.35c

SHAPES, STRUCTURAL

Boston	3.615c
Buffalo	3.65c
Chicago	3.30c
Cincinnati	3.50c to 3.60c
Cleveland	3.46c
Detroit	3.45c
Los Angeles	4.40c
New York	3.64c
Philadelphia	3.65c
Pittsburgh	3.25c
San Francisco	3.60c
Seattle (large shapes)	4.20c
St. Louis	3.45c
St. Paul	3.55c

PLATES

Boston	3.615c
Boston 3/16-inch	3.04c
Buffalo	3.65c
Chicago	3.30c
Cincinnati	3.50c to 3.60c
Cleveland	3.46c
Detroit	3.45c
Detroit, 3/16-inch	3.45c
Los Angeles	3.65c
New York	3.64c
Philadelphia	3.65c
Philadelphia, 3/16-inch	3.95c
Pittsburgh	3.25c
San Francisco	3.75c
Seattle	4.25c
St. Louis	3.45c
St. Paul	3.55c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	4.615c
Buffalo	4.45c
Chicago	4.35c
Cincinnati	4.10c
Cleveland	3.75c to 4.06c
Detroit	4.30c
Los Angeles	5.20c
New York	4.59c
Philadelphia	4.25c
San Francisco	5.25c
Seattle	5.00c
St. Louis	4.45c
St. Paul	4.60c

NO. 28 BLACK SHEETS

Boston	5.65c
Buffalo	5.25c
Chicago	5.20c
Cincinnati	4.90c
Cleveland	4.65c
Detroit	5.15c
Los Angeles	6.50c
New York	4.90c to 5.15c
Philadelphia	5.15c
San Francisco	5.80c
Seattle	6.00c
St. Louis	5.30c
St. Paul	5.45c

NO. 28 GALVANIZED SHEETS

Boston	6.60c
Buffalo	6.35c
Chicago	6.35c
Cincinnati	5.90c
Cleveland	5.60c to 5.80c
Detroit	6.30c
Los Angeles	7.30c
New York	5.95c to 6.15c
Philadelphia	6.25c
San Francisco	6.50c
Seattle	7.00c
St. Louis	6.45c

BANDS

Boston	4.80c
Buffalo	4.35c
Chicago	3.95c
Cincinnati	4.00c to 4.10c
Cleveland	4.01c to 4.16c
Detroit	4.10c
Los Angeles	5.20c
New York	4.39c
Philadelphia	4.35c
Pittsburgh	3.95c
San Francisco	4.50c
Seattle	5.10c
St. Paul	4.20c

HOOPS

Boston	5.80c
Buffalo	4.65c
Chicago	4.55c
Cleveland	4.01c to 4.16c
Detroit	4.95c
New York	5.19c
Philadelphia, 1 inch and wider 20 gage and heavier	4.75c
Pittsburgh	3.95c
Seattle	5.50c
St. Paul	4.80c

COLD ROLLED STEEL

Boston (rounds)	4.75c
Boston (shapes)	5.25c
Buffalo (rounds)	4.70c
Buffalo (shapes)	5.20c
Chicago (rounds)	4.55c
Chicago (shapes)	5.05c
Cincinnati (rounds)	4.50c
Cincinnati (shapes)	5.00c
Cleveland (rounds)	4.25c
Cleveland (shapes)	4.75c
Detroit (rounds)	4.55c
Detroit (shapes)	5.05c
Los Angles (rounds)	5.90c
New York (rounds)	4.65c
New York (shapes)	5.15c
Philadelphia (rounds)	4.35c
Philadelphia (shapes)	4.85c
Pittsburgh	4.25c
San Francisco (rounds)	5.75c
Seattle (rounds)	6.00c
St. Paul (rounds)	4.55c

dition is planned for the National Engineering & Machine Co.

TAMAQUA, PA.—Plans are being prepared by the Wood Bros. Ice Mfg. Co. for the rebuilding of a portion of its plant recently damaged by fire to the extent of $50,000.

TOPTON, PA.—The Topton Foundry Co. has started work on the erection of a new enameling plant.

YORK, PA.—The York Mfg. Co. operating a large plant here, has purchased an 80-acre site for the erection of a gray iron foundry. A pattern shop may also be included.

EAST PROVIDENCE, R. I.—The Union Tank Car Co., New York, announces plans to build a 90 x 150-foot shop here.

PROVIDENCE, R. I.—A locomotive repair shop will be erected here by the New York, New Haven & Hartford railroad.

PROVIDENCE, R. I.—The Highway Appliance Co. has been incorporated to build machinery with $50,000 capital by Robert G. McMeehan, East Providence, Frederick W. Hauck and Henry M. Peckensgill.

PROVIDENCE, R. I.—The Auto Metal Body Co. has been incorporated with 250 shares of stock without par value by Svanta Emil Lindroth, Arthur Richard Ragnell and Adolph Gorman.

PROVIDENCE, R. I.—The Beacon Pressed Steel Co., Inc., has been incorporated with $5000 preferred stock and 50 shares of common stock without par, by the following: E. L. Rowan, M. F. Ellis and D. C. Shaw.

PROVIDENCE, R. I.—The Textile Finishing Machinery Co., this city, plans the erection of a 1-story machine shop costing about $100,000. Lockwood, Greene & Co., 24 Federal street, Boston, is engineer for the job.

WARREN, R. I.—The Johnson Electric Mfg. Co. has been incorporated with $100,000 capital by W. M. Johnson, Richard A. Butler and William A. Heathman.

West of the Mississippi

SAN FRANCISCO—American Machinery & Mfg. Co. was incorporated for $250,000 by N. O. Nelson and H. Gottesfeld.

SAN FRANCISCO—Operations are expected to begin soon by the Mercury Steam Car Corp., 523 Monadnock building, recently incorporated for $10,000,000 to build steam-driven automobiles. W. T. Dickson is president.

ST. LOUIS—Plans have been completed for a new 2-story foundry, 93 x 256 feet, costing $55,000 for the Warren Steel Casting Co., Fairview avenue and the Kings highway.

EUGENE, OREG.—Oregon Machinery Co. has obtained a new site outside the city limits on which it is planned to build a heavy machinery repair shop.

PORTLAND, OREG.—Plans are nearing completion for a 4-story municipal shop and warehouse of concrete and brick, costing $35,000. Approximately $17,500 will be spent for new equipment such as lathes, drills, saws, planers.

HARRINGTON, WASH.—The plant of the Harrington Harvester Co., manufacturer of harvesting machinery, was damaged by fire recently with a loss estimated at $200,000.

SEATTLE—Washington Iron Works will build a concrete and steel powerhouse, 33 x 111 feet, costing $6000. This is the third unit of the plant, a foundry and machine shop now being under construction.

TACOMA, WASH.—The city council has appropriated $50,000 for enlarging the city's steam plant auxiliary of the light department.

Business in Canada

EDMONTON, ALTA.—The Alberta Granite & Marble Works will erect a factory to cost $10,000 and will install additional equipment.

COLLINGWOOD, ONT.—Equipment will be purchased soon for the new plant to be erected here by the Canadian Postal Lock-Nut & Bolt Co.

FORD, ONT.—Dunkley Baby Car Co. of Canada, Ltd., has been incorporated to manufacture and deal in conveyances and vehicles of every kind and accessories and parts, with $50,000 capital, by William H. Dunkley, Birmingham, Eng., Dora Harrison, this city, etc.

HAMILTON, Ont.—Plans are being re-

Bourne-Fuller Service

includes immediate shipment of all Iron and Steel materials from Cleveland and Cincinnati

Warehouses

If you are not receiving our Stock-list we shall be glad to send it to you regularly upon request.

Upson Works

Open Hearth Steel Bars for special uses. Also a complete line of Bolts and Nuts. Prompt Shipments.

THE
BOURNE-FULLER CO.
Iron, Steel
Pig Iron
Coke

CLEVELAND

New York **Chicago** **Detroit**
San Francisco
Cincinnati

July Tool Exports Increase

FIGURES issued by the United States department of commerce, bureau of foreign and domestic commerce, show that the value of domestic imports of lathes and other metal working machinery during the month of July increased over the preceding month. The exports for July were valued at $214,736 as compared with $202,753 in June. However, the number of tools exported in July was less than in June, the total being 303 in July against 417 in June. The exports from the United States by countries were as follows:

Countries	Lathes No.	Lathes Dollars	Boring and drilling machines No.	Boring and drilling machines Dollars	Planes, shapes and slotters No.	Planes, shapes and slotters Dollars	Milling machines No.	Milling machines Dollars
Belgium	5	3,350	14	852	...	.....	1	1,500
France	1	740	...	.....	1	2,508	...	.....
Germany	...	.....	...	.....	1	3,600	...	.....
Italy	1	136	1	617	1	2,486	...	.....
Netherlands	...	.....	2	110	...	.....	...	.....
Spain	1	2,386	2	2,689	1	1,260	...	.....
Sweden	1	4,669	...	.....	...	.....	...	.....
England	12	9,931	1	100	1	800	2	1,000
Quebec and Ontario.	15	8,520	71	24,836	1	1,225	5	4,275
Canada—Prairie provinces	4	1,450	1	79	...	.....	...	.....
British Columbia and Yukon	...	.....	4	306	...	.....	...	.....
Costa Rica	...	.....	...	.....	1	1,150	...	.....
Honduras	2	1,803	...	.....	...	.....	...	.....
Nicaragua	...	.....	...	.....	4	68	...	.....
Mexico	3	884	18	13,480	...	.....	...	.....
Other Brit. West Ind.	1	120	...	.....	...	.....	...	.....
Cuba	6	29,802	3	4,461	1	2,147	...	.....
Dominican Republic.	...	.....	1	355	...	.....	...	.....
Argentina	...	.....	12	183	...	.....	...	.....
Bolivia	...	.....	2	236	...	.....	...	.....
Brazil	1	1,840	1	421	...	.....	1	3,280
Chile	...	.....	2	4,374	...	.....	...	.....
Colombia	1	85	5	9,148	...	.....	...	.....
Ecuador	...	.....	...	.....	1	545	...	.....
Peru	...	.....	...	.....	1	5,585	1	3,173
Venezuela	1	6,513	...	.....	...	.....	...	.....
British India	...	.....	1	1,271	...	.....	...	.....
China	2	1,048	2	185	...	.....	...	.....
Japan	7	9,787	13	2,754	2	11,164	3	4,685
Russia in Asia	3	936	...	.....	...	.....	...	.....
Australia	1	11,883	34	887	...	.....	...	.....
British South Africa.	2	947	14	161	...	.....	...	.....
Total	70	96,780	204	67,505	16	32,538	13	17,913

vised and new bids will be called for the erection of a foundry for the Canadian Westinghouse Co., Aberdeen street West.

SIMCOE, ONT.—The Stalker Engineering Co., Ltd., has been incorporated to carry on a business as iron founder, mechanical engineer and manufacturer of machinery, with $50,000 capital, by John M. Stalker, Mary and William D. Stalker.

TORONTO, ONT.—The Thompson Enterprise Co., Ltd., has been incorporated to manufacture floor polishing machines, electrical machinery, equipment, etc., with $40,000 capital stock, by Henry Thompson, Morris Katz, Clarence R. Giffin and others.

TORONTO, ONT.—Continental Motor Service, Ltd., has been incorporated for $100,000 to manufacture and deal in automobiles, gas engines, flying machines and accessories. William A. Henderson, William N. Irwin, and Francis D. Unfaro are provisional directors.

TORONTO, ONT.—Wilkinson Foundry Facing & Supply Co., Ltd., has been incorporated to manufacture and deal in iron, iron ore and products, foundry facings and supplies, with $100,000 capital by John C. Wilkinson, William J. B. Wilkinson and Frank E. Corby.

MONTREAL, QUE.—The Montreal Harbor commission is building a machine shop to cost about $40,000.

MONTREAL, QUE.—Moore Bros. Machinery Co., Ltd., has been incorporated to manufacture and deal in mill supplies and machines, with $40,000 capital, by Charles W. A. Moore, Benjamin J. Moore, Frank H. Fox and others.

MONTREAL, QUE.—The Continental

(*Concluded on Page* 910)

New Trade Publications

MAGNETIC SEPARATORS—The Magnetic Mfg. Co., Milwaukee, has issued recently a small illustrated folder describing an all-metal magnetic separator. The various features of the machine are explained by means of diagrams.

OIL PUMPS—Force and sight feed oil pumps designed to lubricate the cylinders of steam engines, steam pumps, air compressors, etc., are described in a circular issued by the Manzel Bros. Co., 309 Black street, Buffalo.

ELECTRIC ELEVATORS—The Warner Elevator Co., Cincinnati, has brought out recently a motor for use in elevator operation. It is claimed it will operate noiselessly and without jerking and will carry extra load at low speed.

HIGH SPEED RIVETING—The uses of a high speed riveting hammer are set forth in a 4-page folder issued by the High Speed Hammer Co., Inc., Rochester, N. Y. A dozen types of riveters are illustrated and their capacities listed.

INDUSTRIAL TRUCKS—Electric industrial trucks and tractors is the subject of a new catalog published by the Crescent Truck Co., Lebanon, Pa. The introductory part of the book is devoted to illustrated descriptions of the various truck units such as the controller, motor, drive shafts, bearings, gears, frame, etc. The remainder of the book is filled with illustrations and specifications of trucks in actual use. These include utility trucks, dump trucks, three and four-wheel tractors, low and elevating platform trucks, and trailers.

ELECTRICAL SUPPLIES—The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued a catalog covering line material and porcelain insulators. This catalog is supplementary to the company's large supply catalog. The supplement is an illustrated 200-page publication.

HARDENING AGENT—The Macalene Co., Saint Cloud, Minn., has issued a small folder on the hardening of cast iron. Some attention is given to a liquid hardening agent, which has either oil or water base, for instantly hardening cast iron by heating to a good red heat not scaling point and immediately quenching in the solution.

INSULATORS—A new catalog covering line material and porcelain insulators has been issued by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The catalog is supplementary to the company's large supply catalog and has been issued for the convenience of purchasers of these two allied lines of materials. It is a 200-page publication of convenient size, is fully illustrated, and contains a complete description of all the company's line material and porcelain insulators.

PULVERIZED FUEL SYSTEMS—A 12-page catalog has been published by the Combustion Engineering Corp., New York. It discusses the use of powdered coal by means of diagrams, shows the separate parts of a fuel system and a complete installation; also a section through a boiler plant which is equipped with a pulverized fuel unit.

POWER UNIT—A folder circulated by the Jas. F. Miller & Hurst Corp., General Motors building, Detroit, depicts a power unit adapted for use with continuous baking and drying ovens, trim and assembling conveyors and many other types of material handling devices used in the automotive industry. A variable speed transmission with ratios from 2.1 to 8.1 may be used in connection with the unit.

POSITIVE PRESSURE BLOWERS—A 65-page illustrated catalog discussing blowers has been published by the Connersville Blower Co., Connersville, Ind. A large number of illustrations point out the various features of construction of the blowers and show different types of installations. Indicator and performance curves are included. The last few pages give general information regarding combustion, agitation and ventilation.

Why Make Your Own Stampings?

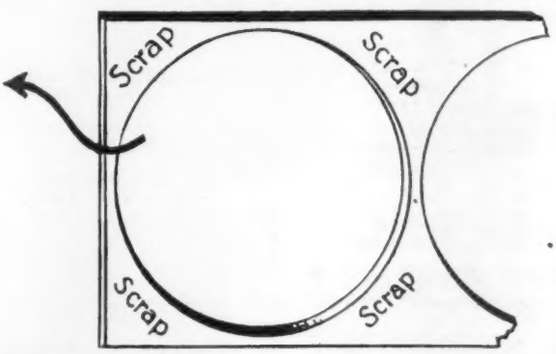
We can furnish them at a price that will save you MONEY

The cost of wasted material and die maintenance is saved when you buy the Budd Company's Stampings—and this saving more than covers our profit for making your stampings.

Our prices are remarkably low—because our methods of production enable us to utilize almost all of our metal. Also, because our operators are thoroughly familiar with dies—and know how to keep them "tuned up" for production—you will have no "*die-maintenance*" cost.

An Example—

In the example shown herewith, the scrap loss was approximately 30%. This 30% was paid for at the price of new material—but its value as scrap was practically nothing. *We save you such losses!*



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SAVE YOU MONEY

Let us submit an estimate on your stamping requirements. Send us samples or drawings. *Our figures will surprise you.*

SPECIALTY DEPARTMENT

EDW. G. BUDD MFG. CO.

Makers of All-Steel Automobile Bodies

2500 Hunting Park Ave.

PHILADELPHIA, PA.

Business in Canada

(Concluded from Page 908)

Equipment Co., Ltd., has been incorporated to manufacture and deal in electrical machinery, motors, dynamos, etc., with $25,000 capital stock; by Frank Callaghan, John D. Kearney, Louis Edwards and others.

MONTREAL, QUE.—The Moore Bros. Machinery Co., Ltd., has been incorporated to manufacture and deal in mill supplies, machinery, tools, etc., with $40,000 capital stock; by Charles W. A. Moore, Frank H. Fox, Albert E. Dey and others.

QUEBEC, QUE.—The Canadian Dirigible Headlight System, Ltd., has been incorporated for $70,000 to manufacture and deal in automobiles and motor vehicles of all kinds, by Alfred C. Dobell, William Q. Stobo, and Peter W. Langlois.

MELVILLE, SASK.—The Municipal Electric Light & Power Co. plant here was damaged by fire with a loss of about $100,000.

YORKTON, SASK.—The power plant here will build an addition costing approximately $75,000, and will install two 300-horsepower engines and two generators.

Iron and Steel Prices

Iron Ore

LAKE SUPERIOR ORES
Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron	$6.45
Mesabi bessemer, 55 per cent iron	6.20
Old Range nonbessemer, 51½ per cent iron	5.70
Mesabi nonbessemer, 51½ per cent iron	5.55

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 53 to 63 per cent	10.00 to 11.00
Copper free low phosphorus 53 to 65 per cent.	13.25 to 16.50

FOREIGN IRON ORE
Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.00 to 10.50
Algerian low phosphorus, 52 to 54 per cent	10.00 to 11.00
Swedish and Norwegian low phosphorus, 68 per cent.	nominal
Swedish foundry or basic, 66 to 68 per cent.	10.50 to 10.75
Spanish foundry or basic, 50 to 54 per cent.	8.00 to 9.50

Manganese Ore

Prices do not include duty at rate 1 per cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent	nominal
Indian, minimum 47 per cent	(nominal) 40 to 42 cents c.i.f. tidewater
Caucasian, 53 to 55 per cent	43¾ cents c.i.f. tidewater

Fluor Spar

85 and 5% grade

Washed gravel, Kentucky and Illinois mines, per net ton	$20.00 to $23.50
Washed gravel, imported, duty paid eastern tidewater, per net ton	$19.60 to 20.00

Rivets

Structural rivets, Pittsburgh	3.00c to 3.10c
Rivets, 7/16-in. and smaller	65 and 10 to 65 and 5 off

Nuts and Bolts

NUTS
(Up to 1¼ and 1½ inches inclusive)

Hot pressed square or hexagon blank	$3.50 off list
Hot pressed square or hexagon tapped	$3.35 off list
Cold punched square or hexagon blank	3.75 off list
Cold punched, square or hexagon,	3.75 off list
Cold punched semifinished hexagon nuts ⅝-inch and larger	75 and 5 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller	80 and 5 off

Price f.o.b. Pittsburgh, Packages of 50.

CARRIAGE BOLTS
(⅜ x 6 inches, smaller and shorter)

Rolled thread	60 and 5 off
Cut thread	50, 10 and 5 off
Larger and longer	50, 10 and 5 off

MACHINE BOLTS
(⅜ x 4 inches, hot pressed nuts)

Rolled thread	60.10 and 5 off
Cut thread	60 and 5 off
Larger and longer	60 and 5 off

(⅜ x 4 inches, cold punched nuts)

Cut thread	45, 10 and 5 off
Larger and longer	45, 10 and 5 off
Lag screws	65 and 5 off
Plow bolts Nos. 1, 2 and 3 heads	50 and 10 off
4 to 10 heads	50-10 + 20 off
Stove bolts	75, 10 and 5 off
Tap bolts	25 and 10 off
Bolt ends with hot pressed nuts	60 and 5 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	60 and 5 off
Rough stud bolts with nuts	50, 10 and 5 off

WASHERS

Wrought washers	$5.00 off

Steel Pipe

(Effective April 19, 1923)

Pittsburgh basing discounts, jobbers' carloads.

	Black	Galvanized
Butt Weld		
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

(Effective Jan. 23, 1923)

Pittsburgh basing discounts, jobbers, carloads

THREADS AND COUPLINGS

	Black	Galvanized
Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED
Two points less than above

EXTRA STRONG, PLAIN ENDS

Butt Weld		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	..

Boiler Tubes

L. C. L. discounts. C. L. 4 points larger

STEEL (Lap welded)
(Effective April 19, 1923)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON
(Effective April 12, 1923)

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN
(Effective April 19, 1923)

1-inch	51 off
1¼ and 1½-inch	43 off
1¾-inch	27 off
2 and 2¼-inch	18 off
2½ and 2¾-inch	28 off
3 and 3¼-inch	32 off
3½ and 3¾-inch	38 off
4-inch	37 off
4½ and 5-inch	29 off

SEAMLESS HOT ROLLED

3 and 3¼-inch	34 off
3½ and 3¾-inch	35 off
4-inch	39 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts

Carbon, 0.10 to 0.20 per cent	83 off
Carbon, 0.30 to 0.40 per cent	81 off
Carbon, 0.40 to 0.50 per cent	net price

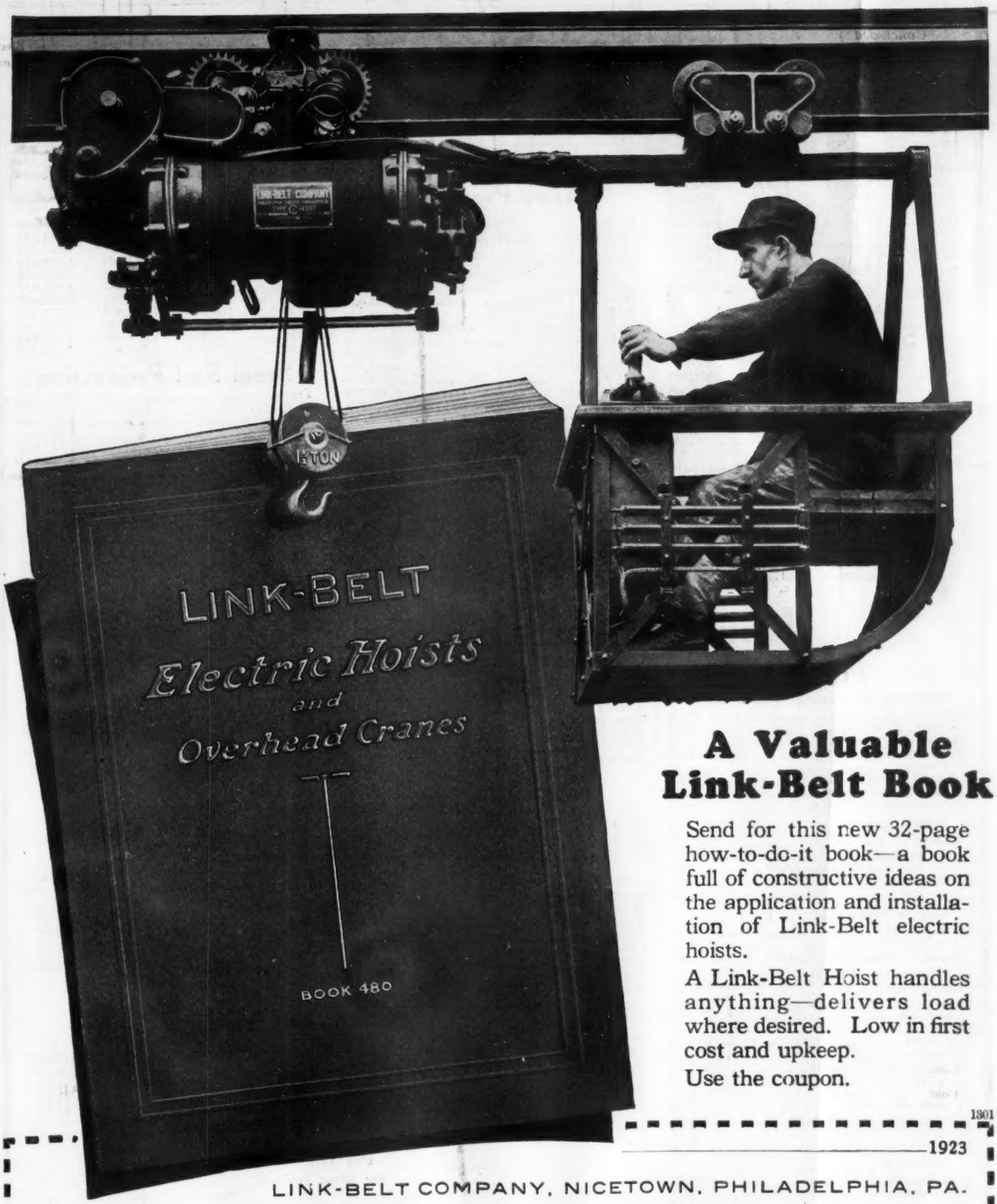
Plus differentials and extras for cutting

SEAMLESS STEEL LOCOMOTIVE AND SUPER-HEATER TUBES
(Effective April 19, 1923)

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.



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Send for this new 32-page how-to-do-it book—a book full of constructive ideas on the application and installation of Link-Belt electric hoists.

A Link-Belt Hoist handles anything—delivers load where desired. Low in first cost and upkeep.

Use the coupon.

1301

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LINK-BELT COMPANY, NICETOWN, PHILADELPHIA, PA.

Please send me (without obligation) the new Link-Belt Electric Hoist Book No. 480.

Firm _____ Town and State _____

Individual _____ Street Address _____

(Iron Trade Review)

LINK-BELT

Iron and Steel Statistics

Tin Plate Production

Year	Tin plate Net tons	Terne plate Net tons	Total Net tons
1908	524,448	77,090	601,538
1909	589,929	95,465	685,394
1910	725,411	84,092	809,503
1911	798,814	79,221	878,035
1912	982,830	95,698	1,078,528
1913	854,093	68,472	922,565
1914	969,892	73,098	1,042,990
1915	1,100,913	81,735	1,182,648
1916	1,276,113	107,088	1,383,201
1917	1,616,658	76,946	1,693,604
1918	1,608,124	42,689	1,650,813
1919	1,203,579	85,929	1,289,506
1920	1,539,977	79,033	1,619,010
1921	837,660	51,927	889,587
1922	1,353,824	88,367	1,442,191

Sheet Production

Year	
1913	1,921,001
1914	1,668,644
1915	2,106,298
1916	2,492,794
1917	2,595,606
1918	2,176,537
1919	2,316,057
1920	3,133,217
1921	1,713,288
1922	3,281,825

Plate Production

Year	Sheared Gross tons	Universal Gross tons	Total Gross tons
1913	1,844,354	1,158,416	3,002,770
1914	1,346,308	766,133	2,112,441
1915	1,923,199	954,852	2,878,051
1916	2,453,150	1,224,234	3,677,384
1917	2,963,039	1,195,199	4,158,238
1918	3,885,126	1,234,782	5,119,908
1919	2,899,967	992,054	3,892,021
1920	3,505,364	1,249,769	4,755,133
1921	1,189,714	570,610	1,760,324
1922	2,171,507	1,248,413	3,419,920

Shape Production

Year	Gross tons
1908	1,083,181
1909	2,275,562
1910	2,266,890
1911	1,912,367
1912	2,846,487
1913	3,004,972
1914	2,031,124
1915	2,437,003
1916	3,029,964
1917	3,110,000
1918	2,849,969
1919	2,614,036
1920	3,306,748
1921	1,272,624
1922	2,718,768

Bar Production

Year	Iron Gross tons	Steel Gross tons	Total Gross tons
1908	685,233	1,301,405	1,986,638
1909	952,230	2,311,301	3,263,531
1910	1,074,163	2,711,568	3,785,731
1911	835,625	2,211,737	3,047,362
1912	944,790	2,752,324	3,697,114
1913	1,026,632	2,930,977	3,957,609
1914	563,171	1,960,460	2,523,631
1915	657,107	3,474,135	4,131,242
1916	993,948	5,236,354	6,230,302
1917	983,926	5,226,031	6,209,957
1918	846,898	5,395,851	6,242,749
1919	446,549	3,945,075	4,391,624
1920	663,032	5,467,208	6,130,240
1921	198,324	1,367,430	1,565,754
1922	317,665	3,660,993	3,978,658

Tube Production

	Iron	Steel	Gross tons
1913	276,067	1,969,465	2,245,532
1914	212,147	1,525,557	1,737,704
1915	206,513	1,713,161	1,919,674
1916	278,117	2,372,941	2,651,058
1917	273,890	2,213,087	2,486,977
1918	202,958	2,087,521	2,290,479
1919	162,356	2,212,575	2,374,931
1920	199,673	2,803,052	3,002,725
1921	110,293	1,877,149	1,987,442
1922	171,235	2,561,001	2,732,236

Steel Rail Production

Year	Gross tons
1908	1,920,944
1909	3,023,845
1910	3,635,801
1911	2,822,556
1912	3,327,915
1913	3,502,780
1914	1,945,095
1915	2,204,203
1916	2,854,518
1917	2,944,161
1918	2,540,892
1919	2,203,843
1920	2,604,116
1921	2,178,818
1922	2,171,766

Iron and Steel Freight Rates

Pig Iron

Mahoning and Shenango valleys to:

Cleveland	$1.76
Newark, N. J.	6.05
Boston	6.55
Philadelphia	5.67
Pittsburgh	1.76
Chicago	4.79
St. Louis	5.80
Minneapolis, St. Paul	6.84

Buffalo to:

Albany, N. Y.	$2.27
New England (rail)	4.91
New York and Brooklyn (rail)	4.91
Philadelphia	4.91
Rochester	1.39

Virginia furnaces to:

Philadelphia	$5.17
New England	5.92
Brooklyn, Jersey City, Newark	5.54

Birmingham, Ala., to:

Boston (rail)	$9.61
Boston (rail and water)	6.91
Cincinnati	4.05
Chicago	6.01
Cleveland	6.01
Louisville, Ky.	3.72
Minneapolis, St. Paul	8.76
New York	9.24
Jersey City, Newark	8.28
Philadelphia (rail)	7.80
Philadelphia (rail and water)	6.01
Pittsburgh	6.84
St. Louis	5.17

Chicago to:

Des Moines	$4.26
Minneapolis, St. Paul	3.04
Milwaukee	1.00
Moline, Ill.	1.77
Omaha	5.47
St. Louis	2.16

Ironton and Jackson, O., to:

Chicago	$4.79
Cincinnati	2.27
Cleveland	3.02
Detroit	3.28
Indianapolis	2.90
Minneapolis, St. Paul	7.56

Finished Material

Pittsburgh, carloads, per 100 pounds, to:

New York	$0.34
Philadelphia	0.32
Baltimore	0.31
Boston	0.365
Buffalo	0.265
Cleveland	0.215
Cincinnati	0.29
Chicago	0.34
Detroit	0.29
Minneapolis and St. Paul	0.60
Kansas City	0.735
Denver	1.27
St. Louis	0.43
New Orleans	0.515
Birmingham	0.69
Pacific coast (all rail)	1.34
Pacific coast (tin plate)	1.20

Export Rail Rates

Manufactured Iron and Steel

Cents per 100 pounds in Carloads

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	25.50	22.50	25.50	23.50	72.00
Wheeling	25.50	22.50	25.50	23.50	72.00
Youngstown	28.50	25.50	28.50	26.50	72.00
Chicago	42.50	39.50	42.50	40.50	50.00
Cleveland	30.00	27.00	30.00	28.00	72.00
Cincinnati	37.00	34.00	37.00	35.00	72.00
South Bethlehem	11.00	14.50	....	10.00	....

Billets

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	$4.30	$3.70	$4.30	$3.90	$16.13
Wheeling	4.30	3.70	4.30	3.90	16.13
Youngstown	4.70	4.10	4.70	4.30	16.13
Chicago	7.10	6.50	7.10	6.70	11.20
Cleveland	5.00	4.40	5.00	4.60	16.13
Cincinnati	6.20	5.60	6.20	5.80	16.13

Pig Iron

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	$4.10	$3.50	$4.10	$3.70	$14.78
Wheeling	4.10	3.50	4.10	3.70	14.78
Youngstown	4.50	3.90	4.50	4.10	14.78
Chicago	6.80	6.20	6.80	6.40	12.99
Cleveland	4.80	4.20	4.80	4.40	14.78
Cincinnati	5.90	5.30	5.90	5.50	14.78

Rails

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	$4.00	$3.70	$4.00	$3.80	$15.46
Youngstown	4.20	3.90	4.20	4.00	....
Chicago	6.75	6.15	6.75	6.35	11.20

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Westfälische Zeitung

Bielefelder Tageblatt

Amtliches Kreisblatt für den Landkreis Bielefeld.

Handelsnachrichten

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Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	14.00 to 15.00
Boston (dealers)	12.50 to 13.00
Buffalo	18.00 to 19.00
Chicago	16.00 to 16.50
Cleveland	16.25 to 16.50
Cincinnati	14.00 to 14.50
Detroit (dealers)	14.00 to 14.50
Eastern Pennsylvania	16.50 to 17.50
New York (dealers)	13.00 to 13.50
Pittsburgh (dealers)	17.50 to 18.50
St. Louis	16.00 to 16.50
Valleys (nominal)	17.50
No. 1 railroad steel New York (dealers)	13.25 to 13.75

BUNDLED SHEETS

Buffalo	$15.00 to 15.50
Cleveland	11.75 to 12.25
Cincinnati	11.50 to 12.00
Detroit	10.00 to 10.50
Eastern Pennsylvania	14.50 to 15.00
Pittsburgh	15.00 to 15.50
St. Louis	8.50 to 9.00
Valleys	13.00 to 14.00

STEEL RAILS, SHORT

Birmingham	16.00 to 17.00
Boston (dealers)	12.50 to 13.00
Chicago	19.50 to 20.00
Cincinnati	19.50 to 20.00
Cleveland	16.00 to 16.25
St. Louis	17.75 to 18.25

STOVE PLATE

Birmingham	16.00 to 17.00
Boston (consumers)	17.00 to 17.50
Buffalo	17.00 to 17.50
Chicago	19.00 to 19.50
Cincinnati (net ton)	10.50 to 11.00
Cleveland	16.00 to 17.00
Detroit (net ton) (dealers)	13.00 to 13.50
Eastern Pennsylvania	18.00 to 19.00
New York (dealers)	14.00 to 14.50
Pittsburgh	15.50 to 16.00
St. Louis	15.50 to 16.00

LOW PHOSPHORUS

Buffalo	23.50 to 24.50
Cincinnati	15.50 to 16.00
Eastern Pennsylvania	22.50 to 23.50
Pitts. billets and bloom crops	23.50 to 24.00

SHOVELING STEEL

Chicago	15.75 to 16.25
Pittsburgh	15.00 to 15.50
St. Louis	16.00 to 16.50

KNUCKLES, COUPLERS & SPRINGS

Chicago	22.00 to 22.50
Eastern Pennsylvania	22.00 to 23.00
Pittsburgh	22.50 to 23.00
St. Louis	19.50 to 20.00

COMPRESSED SHEETS

Buffalo	15.00 to 16.00
Chicago	12.50 to 13.00
Cleveland	14.50 to 15.00
Detroit (dealers)	13.00 to 13.50
Pittsburgh	16.50 to 17.00
Valleys	16.00 to 16.50

FROGS, SWITCHES, GUARDS

Chicago	16.50 to 17.00
Eastern Pennsylvania	16.50 to 17.50
St. Louis	17.00 to 17.50

BOILER PLATE, CUT

St. Louis	11.50 to 12.00

ANGLE BARS—STEEL

Chicago	18.00 to 18.50
St. Louis	17.00 to 17.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	15.00 to 16.00
Boston (dealers)	14.00 to 14.50
Buffalo	15.00 to 16.00
Cleveland, No. 1	14.75 to 15.00
Chicago, No. 1	17.50 to 18.00
Chicago, No. 2	16.50 to 17.00
Cincinnati, No. 1	13.00 to 13.50
Detroit, No. 2	14.00 to 14.50
Eastern Pennsylvania	20.00 to 21.00
Pittsburgh, No. 1	16.00 to 16.50
Pittsburgh, No. 2	17.50 to 18.50
New York, No. 1 (dealers)	15.50 to 16.50
St. Louis, No. 1	16.25 to 16.75
St. Louis, No. 2	16.00 to 16.50

WROUGHT PIPE

Boston (dealers)	11.50 to 12.00
Buffalo	14.00 to 15.00
Eastern Pennsylvania	16.50 to 17.50
New York (dealers)	12.25 to 12.75

YARD WROUGHT

Boston	12.50 to 13.00
Eastern Pennsylvania	17.00 to 18.00

CITY WROUGHT

New York, long	14.50 to 15.00

BUSHELING

Buffalo, No. 1	15.50 to 16.00
Chicago, No. 1	14.75 to 15.25
Chicago, No. 2	11.00 to 11.50
Cincinnati, No. 1	11.50 to 12.00
Cleveland, No. 1	12.00 to 12.50
Cleveland, No. 2	10.00 to 10.50
Detroit, No. 1	12.00 to 12.50
Detroit, No. 2 (new)	11.00 to 11.50
Detroit, No. 2 (old)	9.00 to 9.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh, No. 1	16.00 to 16.50
St. Louis No. 1	16.00 to 16.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston (dealers)	9.00 to 9.50
Buffalo	8.00 to 9.00
Chicago	9.00 to 9.50
Cleveland	12.50 to 13.00
Cincinnati	9.50 to 10.00
Detroit (dealers)	10.75 to 11.25
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	11.00 to 11.50
Pittsburgh	13.00 to 13.50
St. Louis	9.00 to 9.50
Valleys	12.50 to 13.00

CAST IRON BORINGS

Birmingham (chemical)	18.00 to 19.00
Birmingham (plain)	8.50 to 9.00
Boston (chemical)	12.50 to 13.00
Boston (dealers)	10.00 to 10.50
Buffalo	14.00 to 14.50
Pittsburgh	16.00 to 16.50
Chicago	12.00 to 12.50
Cincinnati	10.00 to 10.50
Cleveland	12.75 to 13.00
Detroit (dealers)	12.00 to 12.50
Eastern Pennsylvania	15.50 to 16.50
Eastern Pennsylvania (chem.)	18.00 to 20.00
New York (dealers' price)	11.50 to 12.00
St. Louis	13.50 to 14.00
Valleys	14.50 to 15.00

MIXED BORINGS AND TURNINGS
(For blast furnace use)

Boston (dealers)	8.50 to 9.00
Cleveland	13.00 to 13.25
Detroit (dealers)	11.00 to 11.50
Eastern Pennsylvania	12.50 to 13.50
New York (dealers)	10.00 to 10.50

IRON AXLES

Birmingham	23.00 to 24.00
Boston (consumers)	31.00 to 32.00
Buffalo	28.00
Chicago	29.50 to 30.00
Cincinnati	24.50 to 25.00
Eastern Pennsylvania	35.00 to 38.00
New York (dealers)	27.00 to 28.00
St. Louis	27.00 to 27.50

IRON RAILS

Buffalo	20.00 to 21.00
Chicago	20.75 to 21.25
Cincinnati	14.50 to 15.00
St. Louis	16.00 to 16.50

PIPES AND FLUES

Chicago	10.75 to 11.25
Cincinnati	9.50 to 10.00
Cleveland	10.50 to 11.00
St. Louis	11.50 to 12.00

RAILROAD GRATE BARS

Buffalo	17.00 to 17.50
Chicago	16.50 to 17.00
Cleveland	16.00 to 17.00
Eastern Pennsylvania	18.00 to 19.00
New York (dealers)	14.00 to 14.50
St. Louis	14.00 to 14.50

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Chicago, small	11.50 to 12.00
Cleveland, small	12.50 to 12.75
Cleveland, large	12.00 to 12.50
Detroit (dealers)	11.50 to 12.00

FORGE SCRAP

Boston (dealers)	9.00 to 10.00
Chicago	16.50 to 17.00
Eastern Pennsylvania	14.00 to 14.50

ARCH BARS AND TRANSOMS

Chicago	24.75 to 25.25
St. Louis	22.50 to 23.00

ANGLE BARS—IRON

Chicago	25.00 to 25.25
St. Louis	24.00 to 24.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	11.00 to 11.50
Buffalo	17.00 to 18.00
Chicago	13.00 to 13.50
Cleveland	15.25 to 15.50
Eastern Pennsylvania	16.00 to 17.00
Pittsburgh	15.00 to 15.50
St. Louis	14.00 to 14.50

STEEL CAR AXLES

Birmingham	19.00 to 20.00
Boston (consumers)	22.00 to 23.00
Buffalo	24.50 to 25.50
Chicago	20.25 to 20.75
Cleveland	22.00 to 22.50
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	nominal
Pittsburgh	21.00 to 21.50
St. Louis	21.00 to 21.50

SHAFTING

Boston (consumers)	22.00 to 23.00
Chicago	23.00 to 23.50
Eastern Pennsylvania	24.00 to 25.00
New York (dealers)	18.50 to 19.00
St. Louis	21.00 to 21.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	18.00 to 19.00
Birmingham, iron	17.50 to 18.00
Boston (consumers)	22.00 to 23.00
Buffalo, iron	16.50 to 17.50
Chicago, iron	19.00 to 19.50
Cincinnati	15.00 to 15.50
Eastern Pennsylvania	21.00 to 22.00
New York iron (dealers)	16.00 to 17.00
Pittsburgh, iron	19.00 to 19.50
Pittsburgh steel	22.00 to 22.50
St. Louis, iron	18.50 to 19.00

NO. 1 CAST SCRAP

Birmingham, cupola	19.00 to 20.00
Boston (consumers)	22.50 to 23.00
Buffalo	19.50 to 20.50
Chicago, cupola	21.50 to 22.00
Cincinnati No. 1 machinery cupola (net tons)	20.00 to 20.50
Cleveland, cupola	21.50 to 22.00
Detroit (net ton) (dealers)	20.00 to 20.50
Eastern Pennsylvania, cupola	20.50 to 21.00
New York, cupola (dealers)	18.50 to 19.50
Pittsburgh, cupola	21.00 to 21.50
San Francisco	28.00
St. Louis, railroad	20.50 to 21.00
St. Louis, agricultural	20.50 to 21.00
Valleys	19.50 to 20.00

HEAVY CAST

Boston (consumers)	20.00 to 21.00
Buffalo	16.00 to 17.00
Cleveland	15.50 to 16.00
Detroit (automobile) (net ton)	21.50 to 22.00
Eastern Pennsylvania	19.00 to 19.50
New York (dealers)	17.00 to 18.00
Pittsburgh	19.00 to 19.50

MALLEABLE

Boston (railroad) (consumers)	22.00 to 23.00
Buffalo	20.00 to 21.00
Chicago, railroad	21.50 to 22.00
Chicago, agricultural	19.50 to 20.00
Cincinnati, agricultural	16.50 to 17.00
Cincinnati, railroad	17.00 to 17.50
Cleveland, agricultural	21.00 to 21.50
Cleveland, railroad	22.00 to 23.00
Detroit (dealers)	19.50 to 20.00
Eastern Pennsylvania, railroad	20.00 to 21.00
Pittsburgh, railroad	20.50 to 21.00
St. Louis, agricultural	19.00 to 19.50
St. Louis, railroad	19.00 to 19.50

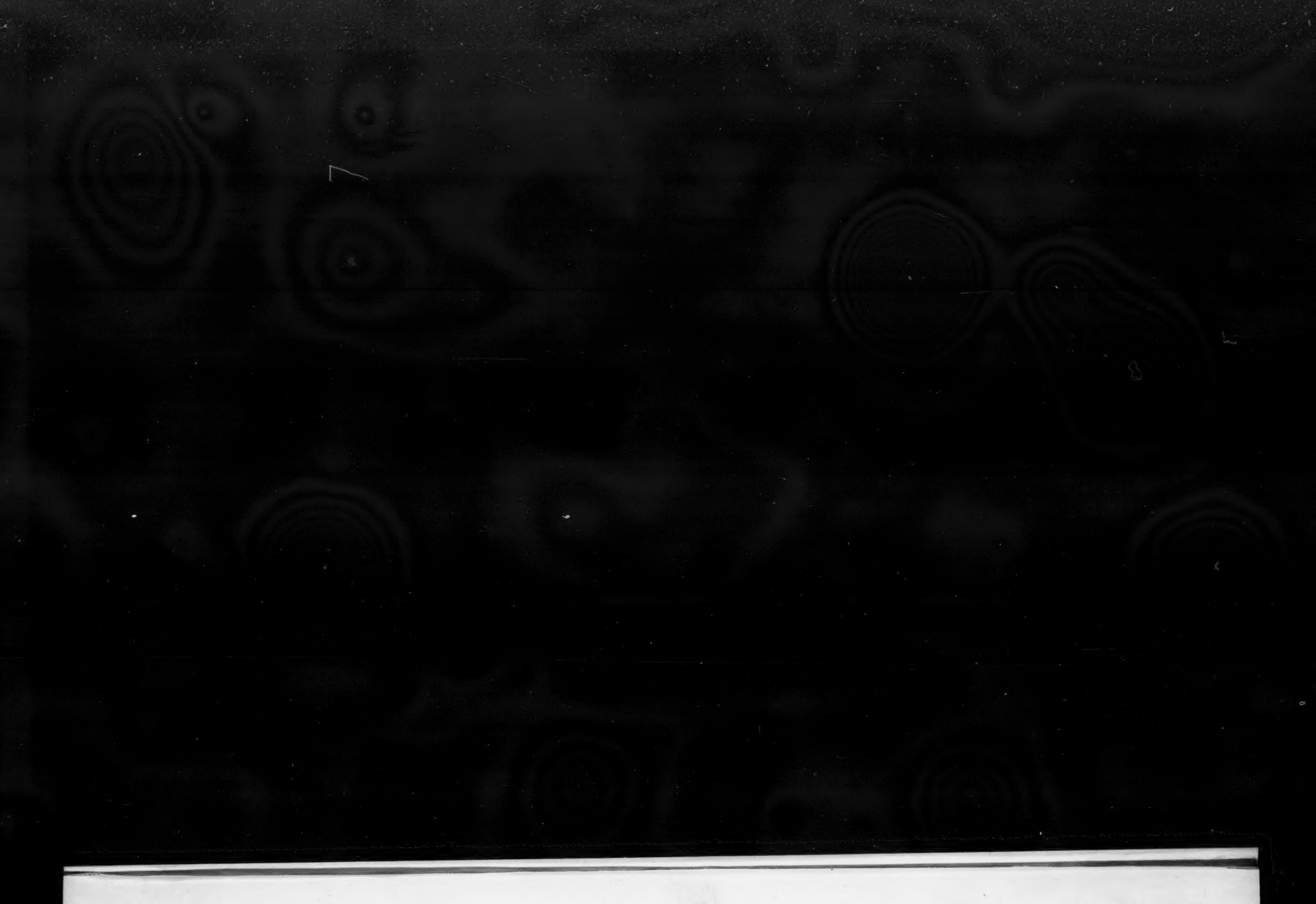
Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	17.00 to 17.50
Boston (dealers)	14.00 to 14.50
Chicago	17.50 to 18.00
Cleveland	19.50 to 19.75
Detroit	14.00 to 14.50
Eastern Pennsylvania	19.00 to 20.00
New York (dealers)	15.00 to 15.50
Pittsburgh district	19.50 to 20.00
St. Louis	17.50 to 18.00

LOCOMOTIVE TIRES

Chicago	18.00 to 18.50
St. Louis	17.00 to 17.50

LOW PHOSPHORUS PUNCHINGS

Chicago	18.50 to 19.00
Eastern Pennsylvania	22.50 to 23.00
Pittsburgh	22.00 to 23.00